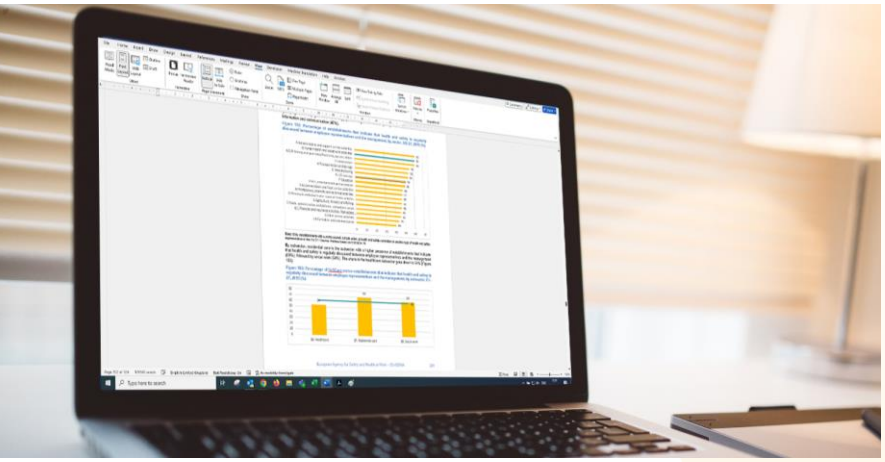
European Agency for Safety and Health at Work



OSH in figures
in the health and social care sector

Report

European Agency for Safety and Health at Work

Safety and health at work is everyone's concern. It's good for you. It's good for business.

Authors: Paul Vroonhof, Martin Clarke, Jacqueline Snijders, Jan de Kok, Marijke Beulen (Panteia), Peter van Scheijndel, Pim van Dorst (vhp Human Performance), Iñigo Isusi, Jessica Duran (IKEI Research and Consultancy), Swenneke van den Heuvel (TNO).

Scientific board: Lise Tevik Løvseth (St Olavs University Hospital), Ferenc Kudász (National Center for Public Health and Pharmacy, Hungary), Iris Eekhout (TNO).

Project management: Lorenzo Munar, Kate Palmer – European Agency for Safety and Health at Work (EU-OSHA).

This report was commissioned by the European Agency for Safety and Health at Work (EU-OSHA). Its contents, including any opinions and/or conclusions expressed, are those of the authors alone and do not necessarily reflect the views of EU-OSHA.

Luxembourg: Publications Office of the European Union, 2024

PDF | ISBN 978-92-9402-335-3 | doi:10.2802/0384857 | TE-01-24-001-EN-N

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Executive Summary

Introduction

This report contributes to a major research activity currently being carried out by the European Agency for Safety and Health (EU-OSHA) on the health and social care sector (HeSCare sector). The HeSCare sector covers a wide range of activities: healthcare activities (NACE code Q86), residential care activities (NACE code Q87) and social work activities (NACE code Q88). It provides work for those in formal care settings such as hospitals, nursing and care homes and medical practices, as well as to care workers for individuals in their own homes. The specific objectives of the study are as follows:

- to help provide a comprehensive overview of the occupational safety and health (OSH) in the HeSCare sector, by exploiting the main EU data sources on OSH and working conditions;
- to make visible (in statistical terms) the differences, variations and specificities, in terms of prevalence of OSH risks, outcomes and OSH management among the different subsectors under the NACE Q sector (NACE codes Q86, Q87 and Q88);
- to help prevent OSH-related problems and to promote good physical and mental health at work for workers in the HeSCare sector;
- to improve understanding among policy-makers, social partners and OSH practitioners at workplaces and researchers, by providing a comprehensive, cross-national insight on the state of the art of the HeSCare sector as regards OSH;
- to help identify data gaps and needs in terms of data and knowledge; and
- to provide data to support preparation of the Europe-wide Healthy Workplace Campaign on “Safe and healthy work in the digital age” (HWC 2023-25) and the forthcoming campaign on “Together for mental health at work” (HWC 2026-28).

The report was prepared using desk research to identify and compile existing relevant information on OSH issues and the HeSCare sector, including scientific and academic publications, and policy documents (such as those produced by the European Commission). The report draws from the following data sources:

- the European Survey of Enterprises on New and Emerging Risks (ESENER);
- the European Working Conditions Telephone Survey (EWCTS);
- the EU Labour Force Survey (LFS);
- the EU-OSHA – OSH Pulse survey 2022; and
- the European Statistics on Accidents at Work (ESAW).

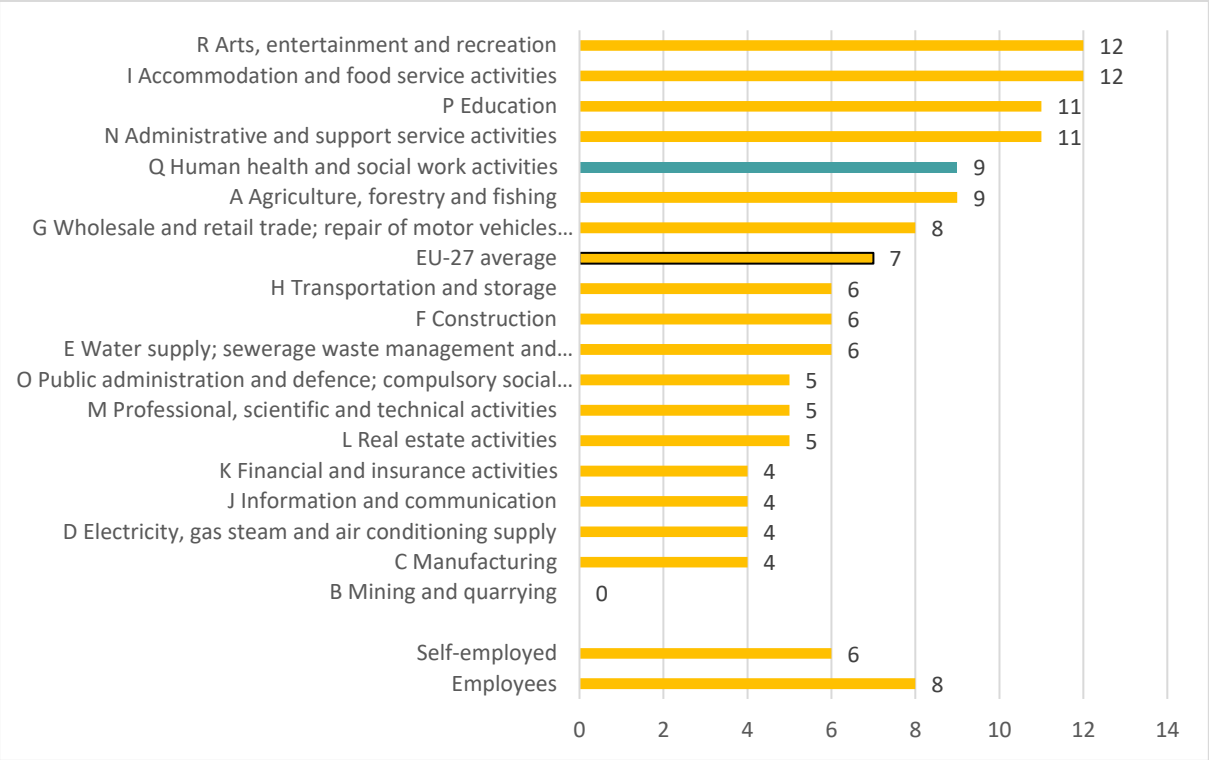
Additionally, in-depth interviews were carried out with selected stakeholders at European Union (EU) level: including representatives from employers and workers organisations, European institutions/agencies and other relevant organisations/associations.

Characterisation of the HeSCare sector

- The HeSCare sector plays a significant role in European society, in terms of overall health and wellbeing as well as for the economy in general. **The HeSCare sector is an important job generator in the EU economy**. According to Eurostat LFS statistics over 21.5 million people were employed in the HeSCare sector (NACE Q) in 2022. **Most of these workers work in the healthcare subsector**, with around 12.5 million employees. Employment levels in the HeSCare sector have been steadily increasing over the past 10 years, something seen to be occurring across all subsectors. The HeSCare sector accounts for 11% of all employment across the total economy.
- According to the EWCTS-2021:
    - **The prevalence of precarious employment conditions is notably higher in HeSCare (9%) compared with the EU-27 average across all sectors** (7%). The **highest prevalence of precarious employment conditions can be found in the social work subsector** (13%), which is almost twice as high as the share in the healthcare subsector (7%). Also, residential care subsector workers are more likely to report precarious

employment conditions than the average in the sector (11%). The distribution of persons reporting precarious employment conditions in the HeSCare sector varies widely across European countries (for example, 2% in Ireland vs 17% in Hungary).

Percentage of workers with precarious employment conditions*, by sector, EU-27, 2021 (%)



Source: TNO based on the EWCTS-2021
Base: All workers in the EU-27.
(*) Precariousness is defined as having a part-time or fixed-term job, and difficulty making ends meet or multiple jobs.

- **Most HeSCare workers hold a permanent contract** (with significant differences depending on the country, the subsector and certain groups of workers). However, as a result of cost and efficiency policies in the HeSCare sector, **non-standard forms of employment contract have become more prevalent**. The proportion of workers holding **temporary contracts is slightly higher in the HeSCare sector** (15%) than in the overall economy (12%). Based on a report from the European Labour Authority (2021), in 2019 there were 3.8 million undeclared workers in the EU engaged in personal care activities.

Characteristics of the HeSCare employment (NACE Q) and total economy, EU-27 (%)

	All sectors	HeScare sector
% Temporary employment	12	15
% Part-time work	18	31
% Undeclared work	3	8

Sources: Eurostat (2022) (Temporary employment and part-time work, year 2022),
Special Eurobarometer 498: Undeclared work in the European Union (2019) (Undeclared work)

- **Strained jobs, where job demands exceed resources, account for half of all jobs in the HeSCare sector** (50%), significantly surpassing the EU-27 average across all sectors.

Employees within HeSCare experience a higher intensity of work compared with the EU average (41%), with the healthcare workforce witnessing the highest work intensity (50%).

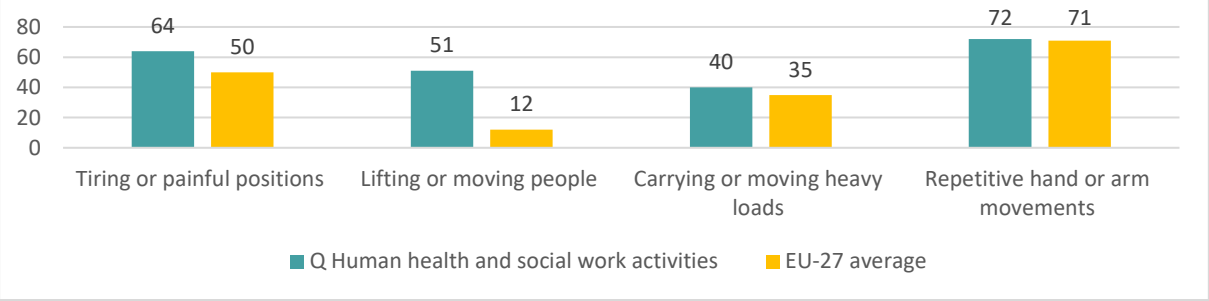
- **Workers in the HeSCare sector encounter challenges in maintaining a satisfactory work-life balance.** The share of employees in the HeSCare sector reporting that they have difficulties managing their work life-balance is higher (23%) compared with the EU-27 average across all sectors (19%).

- According to Eurostat LFS statistics, **women make up a significant majority of the HeSCare sector workforce (around 80% of HeSCare sector employees).** This is apparent in all subsectors, notably in residential care (82%) and social work (82%) and has changed little over the past decade (Eurofound 2020a). Despite providing essential services, women in this sector (especially migrants and those with lower education levels) often face undervaluation and insufficient recognition.
- **Demographic changes, particularly the ageing population, pose significant challenges, leading to potential workforce shortages in the sector**. The increase in older individuals needing care due to age-related health issues, combined with declining birth rates and an ageing workforce, creates an imbalance in the supply and demand for care workers. According to the LFS 2022, within the HeSCare sector, 37% of employees are aged 50 years or above, indicating a 3% higher representation compared with the broader workforce demographics.

Main working conditions and work-related health risks in the HeSCare sector

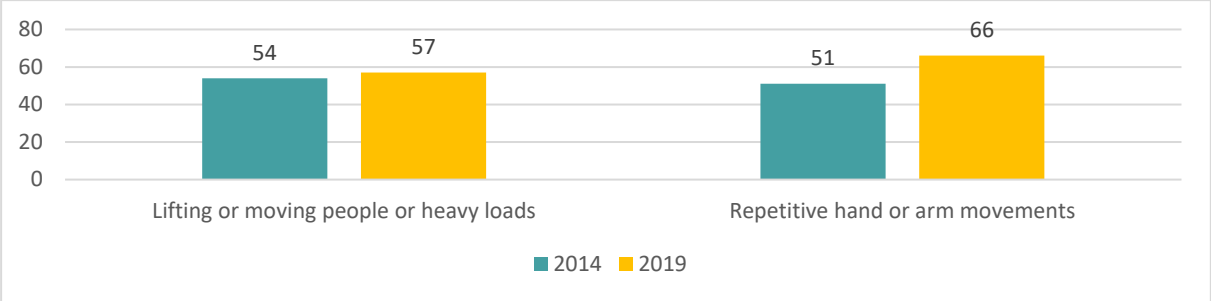
- Data from the 2021 EWCTS shows that **workers within the HeSCare sector have the highest share of co-exposure to musculoskeletal (MSK) risk factors and psychosocial risks.** Workers in the social work subsector are less co-exposed to MSK and psychosocial risk factors when compared with healthcare workers and residential care workers (25%, 35% and 36%, respectively).
- **According to ESENER, MSK risks are the most reported risks in the HeSCare sector;** they can lead to musculoskeletal disorders (MSDs), which are painful injuries of the muscles, tendons, joints and nerves.
- Between 2014 and 2019, data from ESENER shows that in the HeSCare sector 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). 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.

Percentage of workers working sometimes/often/always exposed to musculoskeletal risks, by sector, EU-27, 2021 (%)



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

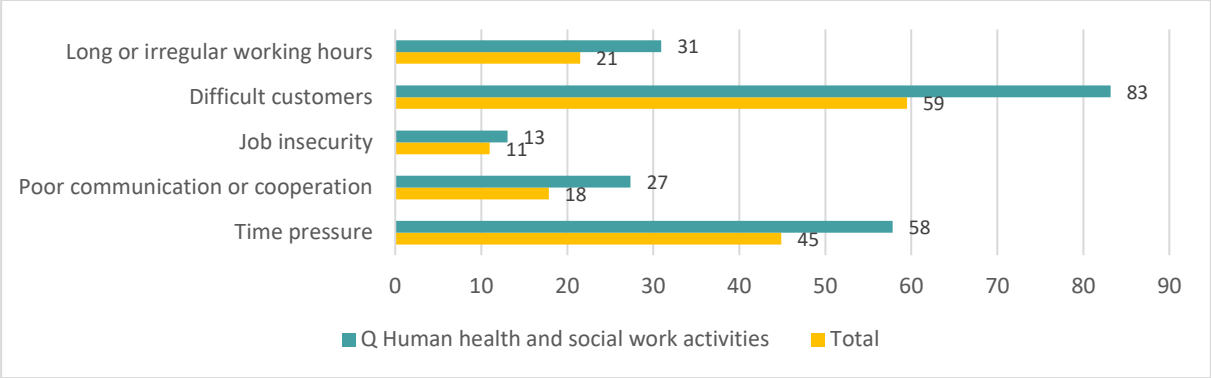
Types of musculoskeletal risks indicated by HeSCare sector establishments, EU-27, 2014 and 2019 (%)



Source: Panteia based on ESENER-2014 and ESENER-2019
Base: All HeSCare sector establishments in the EU-27.

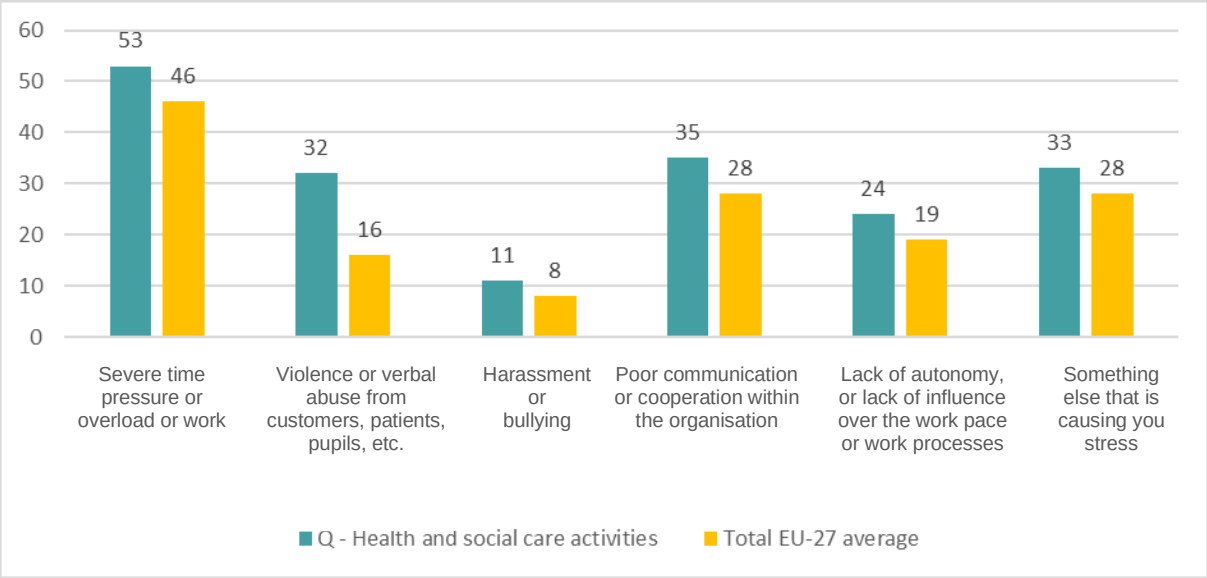
- Compared with other sectors, HeSCare sector **establishments indicate higher levels of exposure to several psychosocial risk (PSR) factors**, as indicated by data from ESENER 2019. Data from the OSH Pulse 2022 Survey show a similar pattern: **for all psychosocial risk factors, HeSCare workers report a higher rate of exposure compared with all workers**.

Percentage of establishments indicating psychosocial risk factors, by sector, EU-27, 2019 (% indicating yes)



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

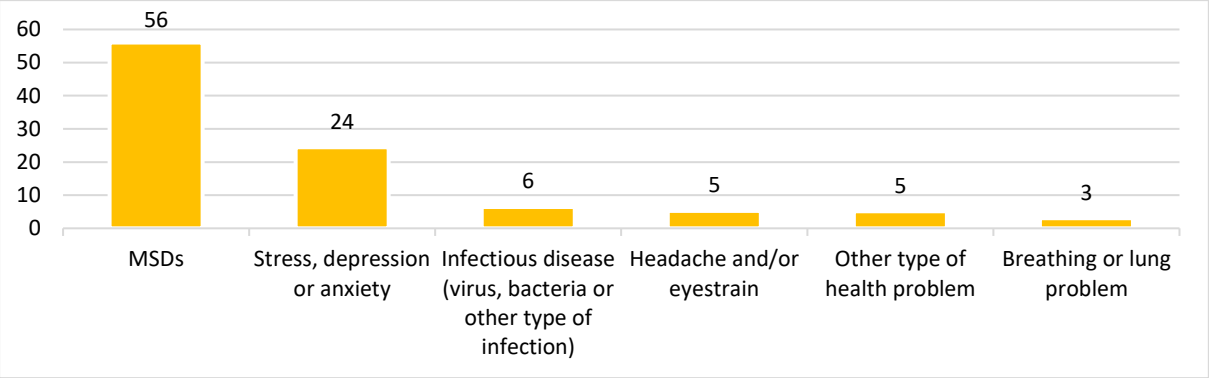
Percentage of workers exposed to a selection of psychosocial risk factors at work, by sector, EU-27, 2022 (%)



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

- Analysis of the data from ESENER 2019 shows that **establishments in the HeSCare sector are less exposed to physical risks**, in comparison with the EU-27 average across all other sectors.
- According to the EWCTS-2021, **workers in the HeSCare sector are more frequently exposed to chemical products or substances** than the average for all EU-27 workers (46% and 26%, respectively). Establishments within the healthcare subsector report almost double the exposure to chemical and biological substances compared with establishments within the social work subsector (61% and 31%, respectively).
- Compared with the EU-27 average across all sectors, **workers in the HeSCare sector are more than three times more likely to handle or be in direct contact with materials that can be infectious**, based on figures from the EWCTS-2021 (59% in the HeSCare sector compared with an EU-27 average across all sectors of 18%). Healthcare workers and residential care workers are more often exposed to biological risks, compared with workers in the social work subsector.
- In the HeSCare sector workers score a **lower task autonomy than the average EU worker** (57% compared with 50%). Employees in the HeSCare sector are more likely than employees in other sectors to have irregular schedules including working during the night and working on short notice compared with the average EU-27 worker (28% and 21%, respectively), based on figures from the EWCTS-2021.
- Work-related health risks in the HeSCare sector (along with transportation and storage sector) are the highest reported when compared with other sectors with nearly half of workers reporting their health or safety is at risk due to work, varying across healthcare (52%), residential care (47%) and social work (37%) based on figures from the EWCTS-2021.
- Data from the LFS-2020 show that of the reported health problems, 80% are MSDs and mental health related: **more than half of the reported problems are MSDs and about a quarter of the reported problems can be described as mental health problems**.

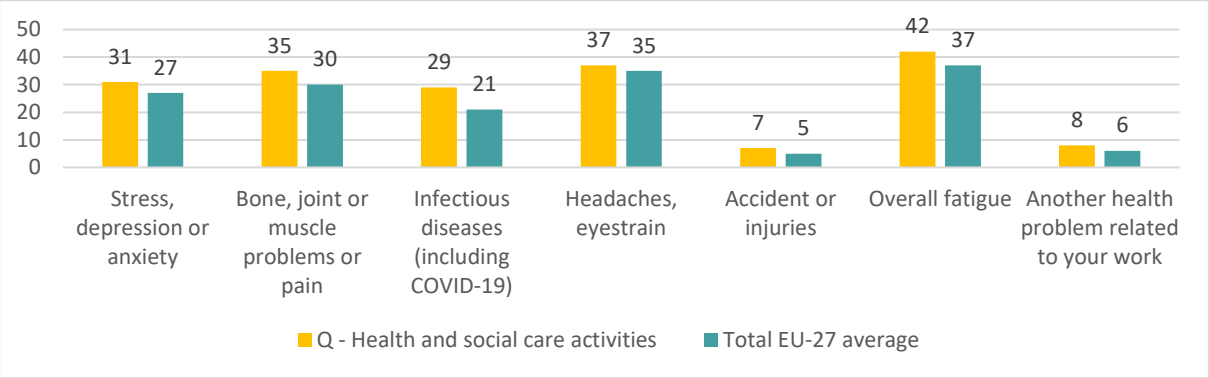
Persons reporting a work-related health problem by type of problem in the HeSCare sector, EU-27, 2020 (%)



Source: EU Labour Force Survey, 2020
Base: % of total employed in the HeSCare sector, age group 15-64.

- Data from the OSH Pulse 2022 Survey show for all health problems caused or made worse by work in the past 12 months, workers in the **HeSCare sector report those problems more often** compared with the EU-27 average across all sectors.

Percentage of workers indicating health problems caused or made worse by work in the past 12 months, by sector, EU-27, 2022 (% indicating yes)



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

- **Workers in the HeSCare sector suffer from MSDs more often than the workers in any other sector**. According to data from the 2021 EWCTS, HeSCare workers experience more back pain, as well as muscular pains in both the upper limbs as well as the lower limbs, in comparison with the average EU-27 worker.
- Data from the 2019 ESENER survey clearly show that, **in comparison with other sectors, establishments in the HeSCare sector report higher levels of work-related stress** (68% compared with EU-27 average across all sectors of 46%). A large percentage of establishments in all three subsectors indicate work related stress. Data from the LFS show that 24% of the workers within the HeSCare sector experiences stress, depression or anxiety. Compared with other sectors, the level of people reporting work-related stress, depression or anxiety is highest for the HeSCare sector. The OSH Pulse 2022 Survey data show that 41% of respondents in the HeSCare sector reported experiencing overall fatigue compared with a share of 37% for all sectors.
- The **number of fatal accidents in the HeSCare sector increased slightly in the period between 2011 and 2019**, while the total number of fatal accidents in all NACE sectors decreased in this period. ESAW data on fatal accidents show a clear peak (an increase of 250%) in the number of

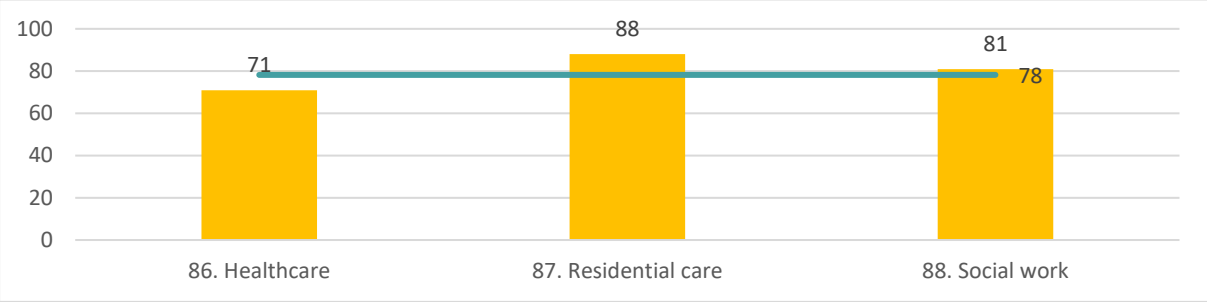
fatal accidents in 2020. Occupational COVID-19 cases in 2020 were reported as accidents at work or cases of occupational disease, which explains the surge of fatal accidents.

- According to LFS data, **non-fatal accidents in the HeSCare sector are reported more often compared with other sectors**. Most of the reported accidents in the HeSCare sector have a relatively low impact, with about 50% of the accidents leading to < 1 day time off work, and about 80% to <2 weeks' time off. Whereas the number of non-fatal accidents in the total economy is relatively stable, **the number of non-fatal accidents in the HeSCare sector seems to have increased over the years**.

OSH management in the HeSCare sector

- According to the ESENER-2019 data on OSH management:
  - **78% of establishments in the HeSCare sector regularly carry out workplace risk assessments**. Residential care establishments are most likely to carry out risk assessments regularly. Larger establishments are more likely to conduct risk assessments regularly (94% among large establishments, in comparison with 67% of micro and small establishments).

Percentage of HeSCare sector establishments that regularly carry out workplace risk assessments, by sub-sector, EU-27, 2019 (%)



Source: Panteia based on ESENER-2019
Base: All HeSCare sector establishments in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

  - Risk assessments are performed by internal staff for 55% of respondents, with 33% indicating assessments are contracted to external providers. The **most important topics covered in risk assessments in the HeSCare sector are biological and chemical risks, and posture and physical working demands, as well as the organisational aspects** – aligning with the main OSH risks for workers in the sector.

Topics that are routinely evaluated by HeSCare sector establishments in workplace risk assessments, by subsector, EU-27, 2019 (%)

	Dangerous chemical or biological substances	Work postures, physical working demands	Exposure to noise, vibrations, heat or cold	Supervisor-employee relationships	Organisational aspects such as work schedules
Healthcare	94	77	41	63	74
Residential care	90	79	42	68	84
Social work	80	77	53	66	76
Total HeSCare	90	78	45	66	77

Source: Panteia based on ESENER-2019
Base: Information from HeSCare sector establishments that carry out regularly risk assessments.

- **General health promotion measures to cope with OSH-related risks are more common in the HeSCare sector when compared with the whole EU-27 economy**: 43% of HeSCare establishments raise awareness of prevention of addiction and 42% promote healthy nutrition.
- **The most recurrent practice to address MSK risks is the provision of ergonomic equipment** (reported by 79% of HeSCare sector establishments), followed by the provision of equipment to help with the lifting or moving (71%). Rotation of tasks to reduce repetitive movements is the least reported measure (50%). Residential care establishments are most likely to provide equipment to help with lifting and moving (83%), rotate tasks to reduce repetitive movements (62%) and allow people with health problems to reduce working hours (75%). Healthcare establishments are most likely to provide ergonomic equipment (81%) and encourage regular breaks for people in uncomfortable working conditions (68%). In most cases, all subsectors are more likely to take preventive measures for MSDs when compared with the total economy, although preventive measures are less prevalent in the HeSCare sector in 2019 when compared with 2014, particularly in the reduction in the provision of equipment to help with lifting of moving.
- **The most common measure taken by HeSCare sector establishments to prevent psychosocial risks is to allow employees to take more decisions on how to do their job** (75%, compared with an EU-27 average across all sectors of 67%). Allowing confidential counselling for employees was reported by 63% of respondents, above the EU-27 average across all sectors. Establishments in the residential care and social work subsectors are most likely to allow employees to take more decisions on how to do their job. Establishments in the healthcare subsector are the least likely to take measures to reduce psychosocial risks.
- **Compared with other sectors, establishments in the HeSCare sector are more likely to arrange regular medical examinations for their employees**. Establishments in the HeSCare sector mostly use the support of occupational health physicians or generalists on health and safety. However, only 39% have the support of a psychologist. Additionally, 63% of establishments in the HeSCare sector uses external providers for support in OSH tasks and to obtain relevant information.
- **The HeSCare sector is also characterised by a high level of management commitment to OSH**, with 73% of establishments indicating that OSH issues are regularly discussed by top-level management. OSH aspects are regularly discussed in staff or team meetings significantly more than the EU-27 average across all sectors.

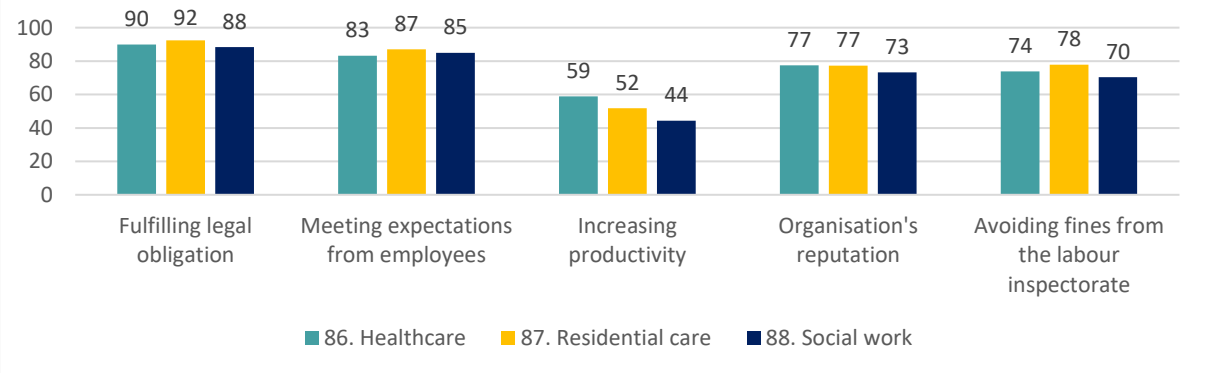
- **As regards training, 75% of establishments within the HeSCare sector report that their team leaders and line managers receive regular training on OSH issues**. HeSCare sector establishments are more likely to offer relevant training to their employees than the average among all other economic sectors in EU-27. Additionally, only 9% of establishments in the HeSCare sector provide OSH training in different languages, which is one of the lowest among all economic sectors in EU-27.

- Data from ESENER-2014 and ESENER-2019 show that **formal procedures taken by HeSCare sector establishments to prevent psychosocial risks have increased over time**. For instance, in 2014, 51% of establishments have a procedure in place to deal with cases of bullying or harassment; this rose to 59% in 2019.

Main drivers and barriers for OSH management in the HeSCare sector

- According to ESENER-2019 data on the main drivers and barriers for OSH management in the HeSCare sector:
  - Two key reasons why HeSCare sector establishments engage in OSH-related issues are the **fulfilment of existing legal obligations and the importance of meeting the expectations of sector employees** (91% and 85%, respectively). Meanwhile, comparison of the HeSCare subsectors shows that the order and importance of the different reasons are relatively similar among the different subsectors.

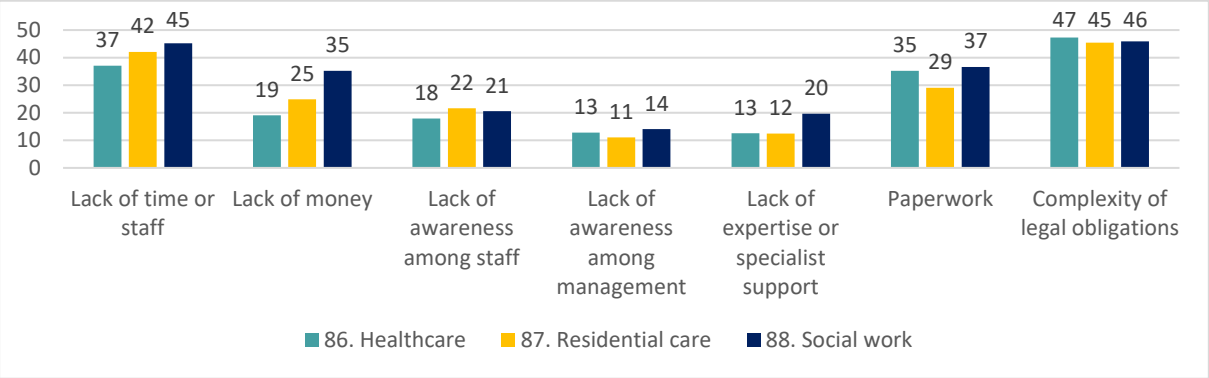
Reasons given by HeSCare sector establishments for addressing health and safety, by subsector, EU-27, 2019 (% indicating major reason)



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

  - **In the last three years, 36% of HeSCare sector establishments have been visited by the labour inspectorate to check health and safety conditions**; this percentage is lower than the EU-27 average for all sectors (41%). Labour inspectorate services visited 47% of establishments in residential care, compared with 33% in the healthcare subsector, and 31% in the social work subsector.
  - **The most important difficulties in addressing OSH issues are the complexity of existing legal obligations, followed by lack of time and staff to deal with these issues and existing paperwork** (47%, 41% and 34%, respectively). The sequence of the importance of these difficulties is equally perceived by the different subsectors comprising the HeSCare sector.

Difficulties for HeSCare sector establishments to address health and safety, by subsector, EU-27, 2019 (% indicating major reason)



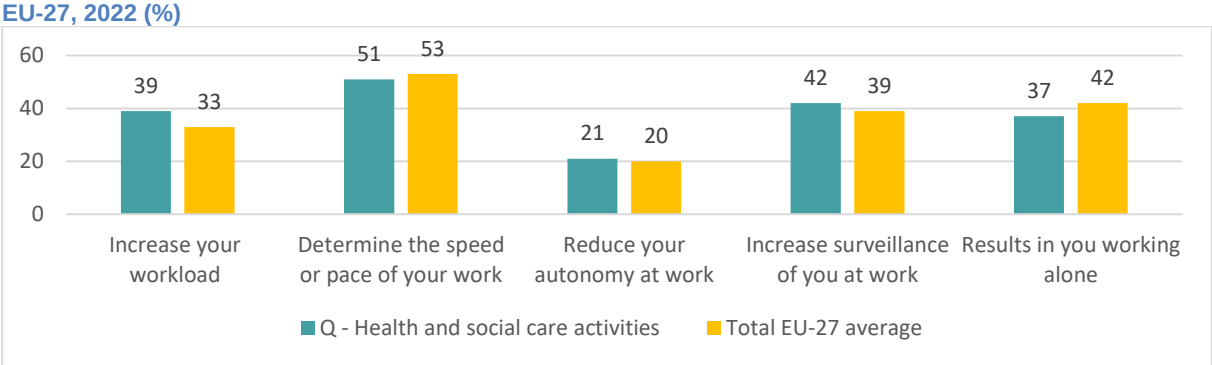
Source: Panteia based on ESENER-2019
Base: All HeSCare sector establishments in the EU-27.

- The main difficulties establishments in the HeSCare sector face in addressing PSRs include the **reluctance to talk openly about these risks** (51% or enterprises), followed by the **lack of expertise or specialist support and the lack of awareness among staff** (34% and 33% respectively).

Additional elements influencing OSH management practices

- The EU HeSCare sector has undergone profound shifts driven by the **COVID-19 pandemic**, with the advent of tougher OSH conditions, and a reshaping of the sector's image and societal relevance. Work stress among HeSCare workers rose, with over half citing increased stress levels due to the pandemic, surpassing the average in the EU-27 population.[1]
- **Digitalisation has become a major driver in the HeSCare sector**, encompassing telemedicine, AI and electronic health records, and reshaping interactions and work processes.[2] The use of digital devices (computer, laptop, tablet, or smartphone) is common in the sector (70% of HeSCare workers use these often or always, according to the EWCTS. OSH Pulse 2022 data respondents indicated 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 **increased surveillance at work and an increased workload** (42% and 39% respectively).

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



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

[1] European Agency for Safety and Health at Work (EU-OSHA) (2022), Human health and social work activities – evidence from the European Survey of Enterprises on New and Emerging Risks (ESENER). Available at : https://osha.europa.eu/sites/default/files/2022-02/ESENER_Human_health_and_social_work_activities_report.pdf

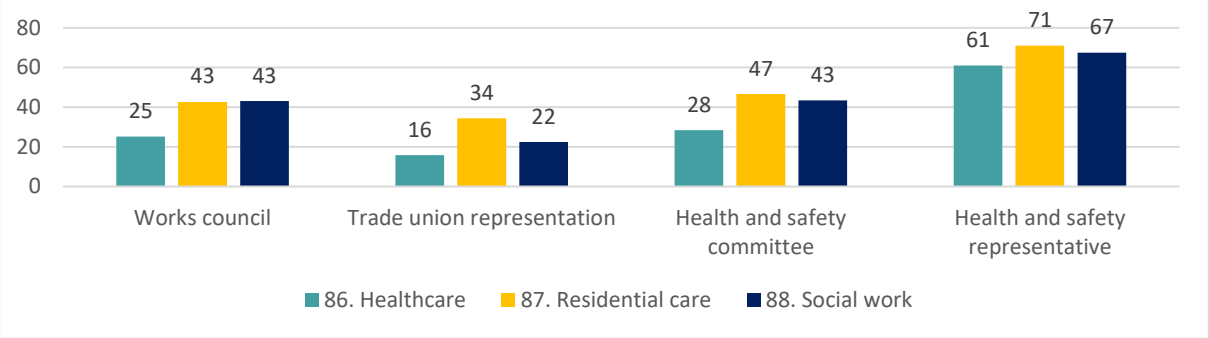
[2] World Economic Forum (2023), 5 innovations that are revolutionizing global healthcare. Available at: https://www.weforum.org/agenda/2023/02/health-future-innovation-technology/

- The HeSCare sector faces challenges due to the increasing **ageing population**, which triggers a multitude of challenges, such as an increase in the burden of specific diseases, intensified demand for HeSCare services, and financial strain due to rising costs, service demands and funding challenges, stressing a need for sustainable financial models.[3]
- **Labour shortages** plague the HeSCare sector, impacting its resilience and sustainability, with qualified healthcare professionals, including general and specialist doctors, nurses, healthcare assistants and physiotherapists in short supply.[4]

Worker participation in OSH management practices in the HeSCare sector

- Data from ESENER-19 on worker participation in OSH management practices in the HeSCare sector show:
    - **Health and safety representatives are the most common formal form of employee participation** for 65% of HeSCare establishments. Compared with the EU-27 average for all sectors, the HeSCare sector has a higher presence of formal forms of employee participation. At subsector level, the presence of forms of employee participation is higher among residential care subsector establishments, whereas it tends to be lower among healthcare establishments.

Percentage of HeSCare sector establishments indicating forms of employee participation, by subsector, EU-27, 2019 (% indicating yes)



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

    - 61% of HeSCare sector establishments with formal employee representation structures are characterised by regular discussions on OSH issues between employee representatives and management. **Compared with other economic sectors, this share is among the highest shares at EU level,** with residential care having the highest presence of establishments indicating that health and safety is regularly discussed between employee representatives and the management (69%); by contrast, this is only 54% for the healthcare subsector.
    - **A large majority of employees are usually involved in the design and implementation of measures related to health and safety in HeSCare establishments** (87%), the highest share among all economic sectors in the EU-27.

[3] Foundation for European Progressive Studies (2023), The European Care Strategy. A chance to inclusive care for all? Policy Study, March 2023. Available at: https://feps-europe.eu/wp-content/uploads/2023/03/FEPS-FES_Care-Strategy-Policy-Study-web-PP.pdf

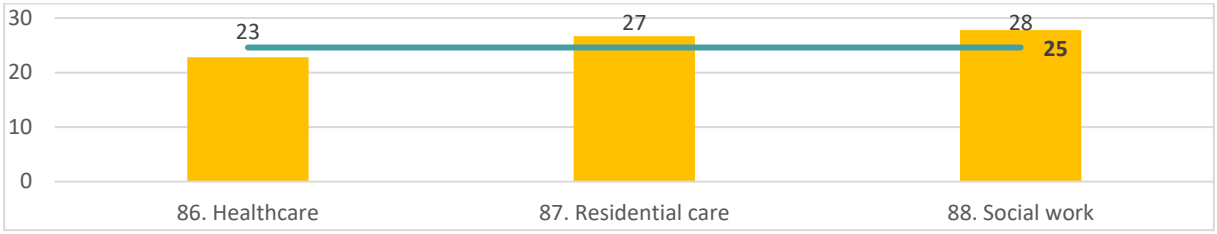
[4] European Labour Authority (2023), EURES Report on labour shortages and surpluses 2022. Available at: https://www.ela.europa.eu/sites/default/files/2023-09/ELA-eures-shortages-surpluses-report-2022.pdf

- **Finally, 77% of establishments in the HeSCare sector indicate that their employees have a role in the design and set-up of measures to address PSR, which is the highest percentage in the EU-27**, compared with economic sectors. 85% of establishments in residential care activities indicate that employees have a role in the design and set-up of measures to address PSR, compared with 70% of healthcare establishments.

Economic costs and burdens

- Absence due to work related accidents, illnesses or health problems has economic costs for the employer, the worker and society. EWCTS data show that in 2021, **the HeSCare sector had the highest share of workers with an illness or health problem which has lasted, or is expected to last, for more than 6 months**. This high share is seen in all three subsectors. The EWCTS was carried out in the second year of the pandemic, which might partly explain these results.

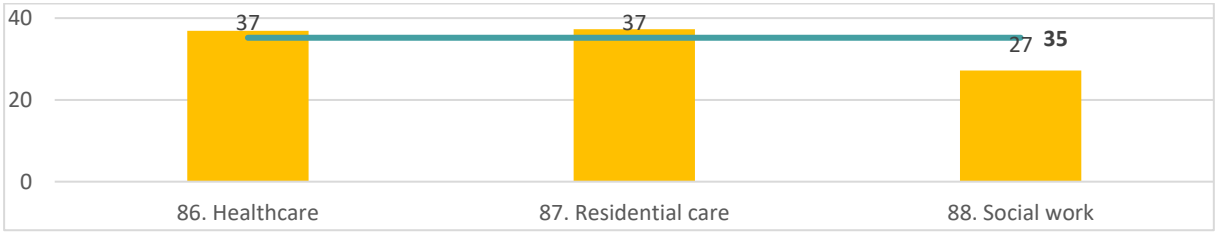
Percentage of HeSCare sector workers with an illness or health problem which has lasted, or is expected to last, for more than 6 months, by subsector, EU-27, 2021 (% indicating yes)



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

- According to data from the 2021 EWCTS, the share of workers in the HeSCare sector reporting working whilst sick over the past 12 months is higher than the EU-27 average across all sectors Differences in presenteeism are quite large throughout the EU-27. For example, the level of presenteeism in the HeSCare sector in France is more than 2.5 times higher than presenteeism levels in Estonia and Lithuania. Presenteeism is less frequently reported **in the social work subsector (27%) compared with that of the healthcare subsector as well as the residential care subsector (both 37%)**.

Percentage of HeSCare sector workers reporting working sick over past 12 months, by subsector, EU-27, 2021 (% indicating yes)



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

- In the HeSCare sector, data from ESAW show that **accidents which lead to the loss of 4 or more days have been steadily increasing since 2011.** 2020 saw a large spike in accidents in the HeSCare sector, although this increase is mostly due to COVID-19 infections. For all NACE activities, there was a reduction in accidents in the workplace.

- Data from ESAW also show that **the number of accidents at work with either permanent incapacity or a significant number of days off resulting from the accident (183 days or more) has been increasing steadily since 2011**. The biggest increase can be attributed to the healthcare subsector.

Policy pointers

OSH in the HeSCare sector

- There is a **need for targeted interventions addressing both musculoskeletal and psychosocial risks factors** in the sector. These interventions should take into account the fact that these risks factors interact with each other.
- **The diversity of the HeSCare workforce needs to be considered in the context of OSH policies and OSH preventive action.** For instance, differences in prevalence of MSDs or mental health issues among the HeSCare workforce (such as by gender and age) underlines the need for diversity-sensitive approaches and risk assessments.
- The findings and analysis carried out at subsector level (healthcare, residential care and social work) show differences in terms of OSH management and the prevalence of certain risks and health outcomes. These findings underscore the importance of **considering subsector-specific factors when designing strategies to improve OSH management** in general or more specifically, regarding psychosocial OSH management. Understanding these differences can provide the information and knowledge required to design and implement targeted interventions aimed at promoting psychosocial well-being, for instance, in specific HeSCare workplaces (depending on the subsector, the size of the establishment and other relevant factors).
- **Extra effort should be put into measures to address MSDs**, considering that the prevalence of MSK risks and MSDs is quite high, but also that preventive measures were less prevalent in the HeSCare sector in 2019 when compared with 2014.
- **Efforts to prevent mental health issues in HeSCare establishments must be supported** by acting at various levels: workplace, sectoral, national and European. This can be addressed by taking actions of a different nature: from practical tools and guidelines to the development of recommendations or legislation on this specific issue. The development of EU legislation specifically addressing PSRs was raised by some of the stakeholders involved in the study. It should be acknowledged that there are different stakeholders' perspectives on the matter, which need to be considered in the context of future dialogue.
- There should be **regular psychosocial risk assessments in HeSCare workplaces, alongside clear guidelines for identifying, evaluating, and managing psychosocial risks**, including excessive workload, violence and bullying.
- This study shows that this sector performs well (in comparison with other sectors) in terms of having a range of OSH risk mitigation strategies in place, particularly for stress, bullying and harassment, abuse and threats from external parties. This is a solid basis on which to **encourage HeSCare establishments to continue to focus further on this to maintain and improve their OSH management**.
- The HeSCare sector has a higher presence of formal forms of employer participation when compared with other sectors, suggesting that the sector is already performing well in this area (even if there is room for improvement). This should be used as a **foundation to build on and encourage further worker participation and social dialogue at EU, national, sector and workplace level**. Special efforts are likely needed in the private sector and in parts of the sector that are less organised, such as home-based related activities.
- **The specificities of home-based care activities** show at least three important issues to be considered, such as the coverage of domestic care work from the protection afforded by EU OSH legislation, the 'home care setting' as a challenging work environment in terms of OSH prevention and the challenges related to undeclared work and precarious working and employment conditions.

- **Tailored actions towards small and medium-sized enterprises (SMEs)** (and more specifically micro and small enterprises (MSEs) are required, as these are less likely to report OSH risks (including psychosocial risks) but are also less inclined to make use of OSH services or manage OSH, including carrying out risk assessments (probably derived from their limited financial and human in-house resources).

Economic costs and burdens

- **Accidents at work, absenteeism and presenteeism pose substantial economic challenges for the European HeSCare sector.** Addressing these issues requires a holistic approach that combines policy interventions, employer initiatives, and a commitment to fostering a culture in HeSCare organisations that prioritises employee well-being and healthy workplaces.
- Proactive measures and actions **aimed at primary prevention** are necessary. **HeSCare sector establishments should be encouraged to invest and improve in OSH management in general (such as through better risk assessments and the training of managers and workers) and more specifically, on accident prevention, back-to-work protocols and accommodations to help workers returning from sick leave.**
- Support is required for HeSCare workers **with chronic or age-related health conditions**, **as well as workers with cumulated exposure (over the years) to a combination of OSH risks in the sector**.

Available OSH-related data in the HeSCare sector

This study has shown the need to make visible – in statistical terms – the OSH situation in the HeSCare sector, given the significant challenges faced by workers. The following measures are proposed to address OSH related data challenges identified in the context of this study:

- **Ensure EU level data remains comparable over time**, to be able to analyse trends and developments at European level.
- **Address sample size limitations** (by increasing the budget allocated to these surveys) that restricted further analysis for all the surveys analysed in this study.
- Make efforts to ensure that the information collected in the various EU-level surveys reflects the **continuous rapid developments in the workplace and changes in the demographics of the HeSCare sector**. This can involve including new or adapted items in relevant survey questionnaires to better address:
    - **generational differences** in stress and resource factors among the workforce;
    - **new and emerging risks** (with a specific focus on those relating to PSR and digitalisation);
    - the prevalence and working conditions of **EU and non-EU migrants** in the sector;
    - indicators for the impact of **chemical, biological and physical risks** in the sector;
    - the prevalence and impact of **violence and harassment** in the sector; and
    - the impact that different **occupations and roles** within the workforce have on OSH.
- **Carry out statistical analyses at the subsector level**. This study was the first time that this had been carried out for ESENER in the HeSCare sector. Having specific subsector-level data allows for more tailored policy actions and responses from policy-makers to address sectoral specific challenges.
- **Carry out more in-depth further analysis** of the variables included in the surveys covered in this study by increasing the budget allocated to statistical reports and analysis.

Going beyond OSH

There needs to be a **collaborative effort between stakeholders from different policy areas to improve the health and safety of HeSCare workers**. A combination of efforts is required from stakeholders from different policy areas. Several key issues, challenges and trends identified in this report have an influence and impact on the health and safety of workers and can only be addressed under other policy areas (beyond OSH): public health policy, healthcare and long-term care policies, employment policy, and patients' rights and quality of care. Key factors to be addressed include, among

many others, resolving staffing shortages, addressing existing financing issues in the sector (ensuring sufficient funding of healthcare and long-term care systems), improving employment conditions, protecting the workforce from factors such as third-party violence, managing an ageing population and an ageing workforce, and improving the sector's attractiveness and its capacity to retain its workforce.

The data presented in this study show that the **COVID-19 pandemic has had an important impact on the health and safety of HeSCare workers**, contributing to increasing the profile of the sector in the public eye. The numerous initiatives and strategies carried out at EU and national level that target the sector can be considered as a way of recognising its key role and importance in Europe. **The pandemic could be used as a catalyst to improve OSH in the sector.** Measures to **guarantee the right of HeSCare sector workers to a high level of protection of their health and safety at work** are needed. These measures are also needed to **guarantee the right of EU citizens and patients to timely access to affordable, preventive and curative health care of good quality** and the right to **affordable long-term care services of good quality**, in particular home-care and community-based services. It is important to underline that without healthy and safe HeSCare workers, the provision of good-quality health and long-term care services is highly compromised. The pandemic has also helped to make more apparent the links between OSH and public health policy, and the need to strengthen collaboration in these two policy areas.

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 activities (HeSCare) sector plays a significant role in European society, both in terms of overall health and wellbeing and for the economy in general. The HeSCare sector includes a wide range of activities, grouped into healthcare activities (NACE code Q86), residential care activities (NACE code Q87) and social work activities (NACE code Q88). It provides work for those in formal care settings, such as hospitals, nursing and care homes and medical practices, as well as to care workers for individuals in their own homes. This report uses a simplified terminology to address the three subsectors (indicated in Table 1 below). In the literature review, the term long-term care is often used to mean providing assistance and support for individuals who may require help with daily activities due to age, disability or health-related issues. Long-term care, in most of the studies cited in this report, includes residential and non-residential care or home care.

Table 1: Health and social care activities (NACE rev 2)

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 and relevant policy context

Objectives

This report contributes to a major research activity currently being carried out by EU-OSHA on the HeSCare sector.[5] The specific objectives of the study are as follows:

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

Box 1: Specific objectives pursued by this study

- To help provide a comprehensive overview of the state of play of OSH in the HeSCare sector by exploiting the main EU data sources on OSH and working conditions.
- To make visible (in statistical terms) the differences, variations and specificities, in terms of prevalence of OSH risks, outcomes and OSH management among the different subsectors under the NACE Q sector (NACE codes Q86, Q87, Q88).
- To help prevent OSH-related problems and to promote good physical and mental health at work for workers of the HeSCare sector.
- To improve understanding among policy-makers, social partners and OSH practitioners at workplaces and researchers, by providing comprehensive, cross-national insight on the state of the art of the HeSCare sector as regards OSH.
- To help identify data gaps and needs in terms of data and knowledge.
- To provide data to support preparation of the Europe-wide Healthy Workplace Campaign on "Safe and healthy work in the digital age" (HWC 2023-25) and the forthcoming campaign on "Together for mental health at work" (HWC 2026-28).

The study's primary target group is policy-makers at EU and national level, including the European Commission and other EU institutions, social partners and public authorities. The secondary target group is OSH researchers, experts and practitioners.

Relevant policy context

The HeSCare sector is highly significant for the economy, as well as for society in general: it plays a fundamental role in safeguarding and promoting the health, safety and quality of life of individuals across all ages and backgrounds. Its significance is further underscored during times of crisis, such as the COVID-19 pandemic, where its capacity to respond effectively can save lives and mitigate the impact of emergencies. Over the past years, the HeSCare sector has received a great deal of attention at policy level, and this is translated into many recent EU strategic documents, strategies and initiatives focused on the sector. At EU level, there have been several programmes and strategic frameworks in the OSH field which identify key priorities and common objectives, while providing a framework to align national policies and encourage a comprehensive culture of prevention, establishing a clear European direction. The most recent strategic framework in place is the **Strategic Framework on Health and Safety at Work 2021-2027,**[6] which is based on the previous EU Strategic Framework 2014-2020. Its purpose is to prioritise certain actions and ideas aiming to improve workers' health and safety, in the context of a post-pandemic era, while also taking into consideration factors such as economic challenges, demographic changes, the green and digital transition, and the changing notion of traditional workplace environment and its patterns (European Commission, 2021b). The strategy uses a threefold approach, involving EU institutions, Member States, social partners and stakeholders in the process. The strategy has shifted its focus to three key primary concerns (European Commission, 2021b):

1. Foreseeing and handling change in the context of environmental sustainability, digitalisation and demographic shifts.
2. Enhancing efforts to prevent avoidable work-related accidents and illnesses.
3. To improve preparedness to address present and forthcoming health crises, the Commission will establish emergency procedures and guidance for quick deployment, execution and oversight of measures for potential future crises.

The COVID-19 pandemic has underscored how crucial OSH is for protecting our health, a functioning society and the continuity of critical economic and social activities (European Commission, 2021c). Moreover, it highlighted the importance of employers having an overall framework obligation of risk assessment and preventive measures to address work-related health risks for workers in health crises. This is why the renewed commitment to keeping OSH at its forefront is crucial.

[6] More information available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021DC0323&qid=1626089672913#PP1Contents

With specific reference to the HeSCare sector, the Commission proposes several actions:

- produce an OSH overview of the health and care sector, in cooperation with EU-OSHA;
- actively address hazards in the healthcare sector by putting in place and implementing safe working procedures and providing appropriate training; and
- develop a guidance for the health care sector focusing among others on workers' protection from exposure to hazardous medicinal products, paving the way for developing the Online interactive Risk Assessment (OiRA) tool specifically for the health care sector, in collaboration with EU-OSHA.

Another relevant action taken by the EU was the adoption of the **European Pillar of Social Rights**[7] in 2017. This pillar aims to deliver 20 fundamental principles on social rights, equal opportunities and access to the labour market. For the HeSCare sector, it highlights workers' rights such as the right to fair working conditions and a healthy working environment. The European Pillar of Social Rights Action Plan converts the principles into concrete action. The action plan sets out essential policy actions and initiatives for implementation of the pillar, to reduce health inequalities, and contribute to a more robust European Health Union that advocates for and safeguards the well-being of individuals (European Commission, 2017).

Under the Pillar of social rights, three main principles that are essential for OSH in the HeSCare sector. **Principle 10 'Healthy, safe and well-adapted work environment and data protection'** is the right to fair working conditions, workers are entitled to have a high level of protection for their health and safety at work, a working environment aligned with their professional needs that enables their participation in the labour market, and their data protected in the employment context. Moreover, principle 16 focuses on the right to healthcare and to timely access to **affordable, preventive, and curative healthcare of good quality;** it underscores the importance of ensuring health to citizens, through **universal access** regardless of background or economic status, promptly avoiding unreasonable delays or obstacles (European Commission, 2017)**.** Lastly, principle 18 focuses on long-term care, on the right to affordable **long-term care services of good quality, in particular homecare and community-based services.** This principle is put into action with the 'Council Recommendation on access to **affordable high-quality-long-term care',**[8] to improve the availability and the quality of such services, addressing the adequacy of social protection.

Another relevant EU policy for the HeSCare sector is the **European Care Strategy**[9], which is aimed at ensuring high-quality, affordable and accessible care services while improving the condition of care receivers and people in the workforce by bettering their working conditions and promoting gender quality and work-life balance (European Commission, 2022c). The existence of affordable high-standard care services would encourage women to join the labour market as well as mitigate the consequences of gender disparities, thereby fostering gender equality. The strategy aims to tackle the whole life-cycle of care, starting from childcare and extending to long-term care needs. It mainly highlights the Council recommendation of the Barcelona targets of early childhood education and care (ECEC) and access to affordable high-quality long-term care[10]. The EU is encouraged adopt a more proactive stance in addressing the enduring inequalities stemming from the historical neglect of caregiving responsibilities. Furthermore, it should create a platform to support the sharing of best practices in EU health and social affairs. The strategy has been formulated under the European Pillar of Social Rights, strongly supporting the implementation of several principles of the Pillar, and it is executed in collaboration with industry stakeholders and international organisations.

Another strategy that the European Union has presented is the **EU Global Health Strategy,**[11] which offers a framework for the EU for more robust health policies by providing 20 guiding principles (European Commission, 2022d). The main purpose of the strategy is to improve global health and

[7] More information available at: https://ec.europa.eu/info/strategy/priorities-2019-2024/economy-works-people/jobs-growth-and-investment/european-pillar-social-rights_en

[8] More information available at: https://data.consilium.europa.eu/doc/document/ST-13948-2022-INIT/en/pdf

[9] More information available at: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13298-European-care-strategy_en

[10] More information available at: https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A32022H1215%2801%29

[11] More information available at: https://health.ec.europa.eu/system/files/2023-10/international_ghs-report-2022_en.pdf

security and to offer better health for its citizens in an evolving, rapidly changing geopolitical environment, in the interest of seeking to attain the highest attainable standard of health. It positions global health as an essential pillar of the EU external policy aligned with the UN Sustainable Development Goals 2030. The strategy encompasses three core priorities:

1. investing resources to improve the welfare of all individuals.
2. achieving universal health coverage in an equitable way with a more resilient health system.
3. taking present and future health threats.

The strategy is seen as the external dimension of the **European Health Union,**[12] formulated to provide direction to EU efforts aimed at enhancing preparedness and the ability to respond effectively to health crises (European Commission, 2022d). It plays a pivotal role in advocating for OSH measures specific to the HeSCare sector, ensuring workers operate in a safe and secure environment. This is linked with the prevention of workplace hazards, since the sector is more vulnerable to exposure to certain health threats.

In June 2023, the European Commission launched the **Comprehensive Approach to Mental Health**[13] initiative, taking a holistic approach based on efficient measures aimed at prevention, availability of mental health care and treatment characterised by quality and affordability, and reintegration into society after recovery. It highlights the important role that action at EU level can play in promoting good mental health and preventing, mitigating, and responding to mental health challenges. Work-related stress and other mental health issues that can arise in HeSCare sector workers must be tackled, for the well-being of the person as well as for productivity. Healthcare professionals are exposed to multiple stress factors within their work which may negatively influence their physical, mental, and emotional well-being (Søvold et at. 2021). Numerous factors contribute to elevated stress among HeSCare workers, including heavy workloads, long shifts, a high pace of work, lack of physical or psychological safety, chronicity of care, moral conflicts, perceived job insecurity, and workplace-related bullying or lack of social support. The resulting psychological distress can lead to burnout, depression, anxiety disorders, sleeping disorders and other illnesses (WHO, 2016).

Finally, the **Gender Equality Strategy,**[14] is focused on policies and actions in a bid to make progress toward a gender-equal Europe. Its key goals are to put an end to gender-based violence, challenge gender stereotypes, reduce and close the gender gaps in the labour market, attain equal involvement across the economic sectors, address the gender pay and pension gap, and strive for gender parity in political representation and decision-making (European Commission, 2020). This policy is important because in the HeSCare sector, gender imbalance continues to be a key challenge with a particular employment pattern in which the workforce is predominantly women. In Europe, women make up 76% of the total of care workers (EIGE, 2021). Accordingly, the strategy addresses some of the gender imbalances, such as segregated integration in the labour market, career advancement in leadership positions and equal pay (Baioco Sara, 2020).

1.2 Research questions

In order to achieve the objectives described above, a list of research questions was drawn up, with the goal of developing the content and design of this report, as well as the different methodological tools employed.

[12] More information available at: https://health.ec.europa.eu/publications/eu-global-health-strategy-better-health-all-changing-world_en

[13] More information available at: https://health.ec.europa.eu/publications/comprehensive-approach-mental-health_en

[14] More information available at: https://commission.europa.eu/strategy-and-policy/policies/justice-and-fundamental-rights/gender-equality/gender-equality-strategy_en

Table 2: Main research questions proposed in this study

Topic	Research questions
Characteristics of the health and social care (HeSCare) sector	▪ What are the main employment characteristics in the HeSCare sector (for example, age, qualifications, employment conditions? ▪ How do these differ between countries? ▪ What are the impacts of these characteristics on OSH?
	▪ What are the characteristics of companies in the HeSCare sector? ▪ How do these differ between countries? ▪ What are the impacts of these characteristics on OSH?
Exposure to OSH risk factors	▪ What are the main biological, chemical, physical and MSK risk factors in the HeSCare sector? ▪ What are the main psychosocial risk factors in the HeSCare sector? ▪ What are the main organisational risk factors in the HeSCare sector? ▪ What are the main differences between subsectors in exposure to risk factors?
	▪ What combined risk factors (for example, psychosocial risks and MSKs risk factors) exist in the health and social care sector?
	▪ Have the risks developed over time? ▪ What new and emerging risks are in the HeSCare sector?
Health and safety outcomes	▪ What are the main physical or MSK health and safety outcomes for workers in the HeSCare sector (for example, upper limb disorders, lower limb disorders, back pain and injury, and neck and shoulder conditions)? ▪ What are the main psychosocial health and safety outcomes for workers in the HeSCare sector (for example, stress, fatigue, depression, anxiety)?
	▪ What is the prevalence of occupational accidents in the HeSCare sector? What are the main types of occupational accidents?
	▪ What is the prevalence of occupational diseases in the HeSCare sector? What are the main types of occupational diseases?
	▪ What are the levels of absenteeism from work due to accidents or work-related health problems? ▪ What are the levels of workers exiting the labour market due to health problems?
	▪ How do health and safety outcomes differ by sub-sector?
	▪ Do the main health and safety outcomes of workers vary by gender, nationality and status?
OSH management and prevention activity	▪ What are the main OSH management practices in the HeSCare sector? ▪ How have OSH management practices developed over time?
	▪ What are the main drivers and barriers for managing OSH in the HeSCare sector?
	▪ How are workers involved in OSH management practices? ▪ Do workers have a role in the design and set-up of measures to address OSH risks in the HeSCare sector?
	▪ What health and safety services, be it in-house or contracted externally, are used in the HeSCare sector?
	▪ How do OSH management practices differ by sub-sector?

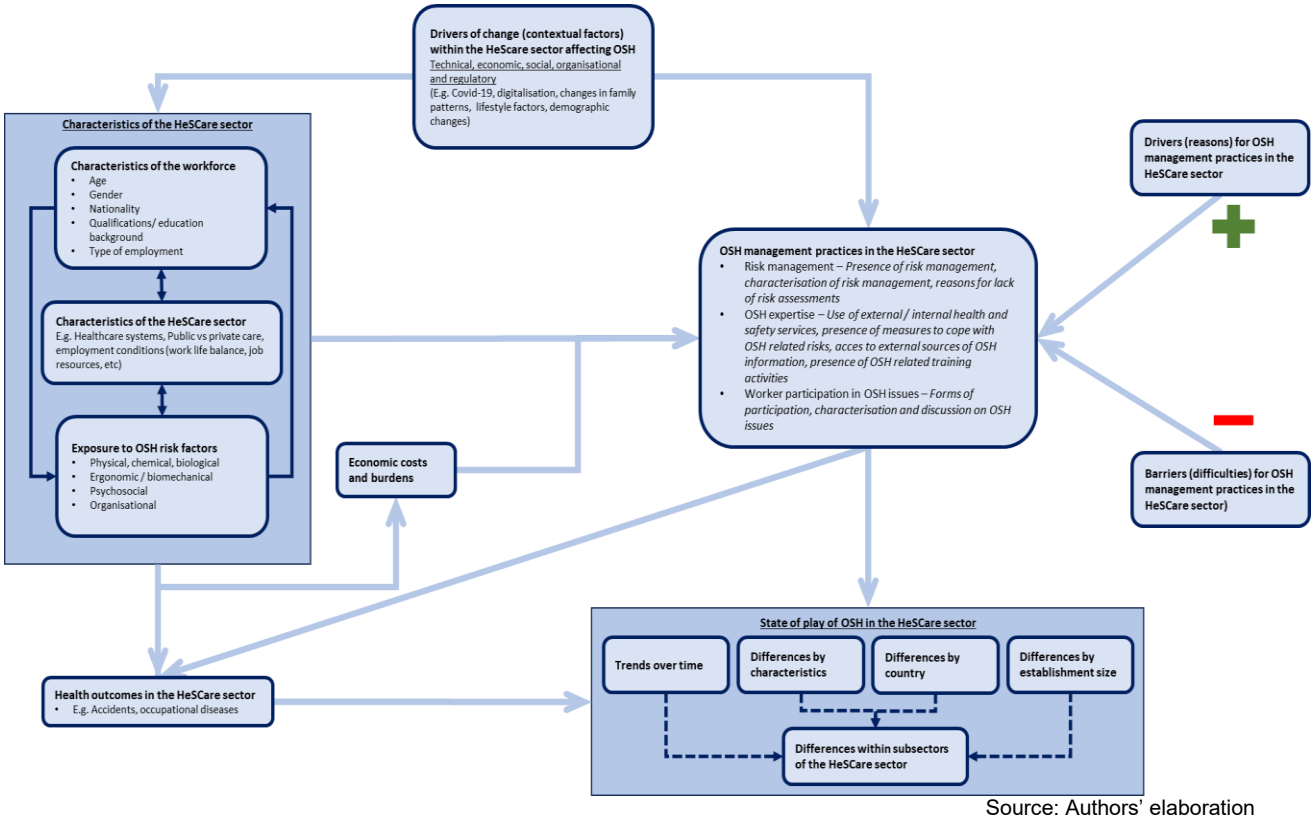
Topic	Research questions
Diversity in the HeSCare sector	▪ How diverse is the health and social care workforce? ▪ What are the different characteristics of the different subsectors? ▪ How do these differences impact on OSH?
	▪ What is the impact of certain characteristics on OSH in the HeSCare sector and are certain groups more affected by OSH risks based on: o Age? o Nationality? o Qualifications and education background?
Contextual factors influencing OSH and OSH management	▪ What are the technical, economic, social, and organisational factors and changes affecting the HeSCare sector in the past years? ▪ What are the main differences among subsectors? ▪ What were the implications of these technical, economic, social, and organisational factors and changes on OSH management within sector workplaces?
	▪ What are the specific challenges in relation to the green transition, digitalisation, and the COVID-19 pandemic as regards recent OSH management in the HeSCare sector (or specific sub-sector)?
Economic costs and burden (for workers, companies and social security systems).	▪ What is the impact of OSH-related health outcomes in HeSCare workplaces (such as sickness absence, presenteeism, employers' health costs, productivity)?
Data availability	▪ Is there sufficient and up to date comprehensive data comparable across all Member States? If not, which are the main shortcomings and how could the situation be remedied? ▪ What are the missing questions and indicators (if any) that should or could be developed to better understand OSH issues, problems and trends in the HeSCare sector? ▪ What can be learned from the data analyses carried out, in terms of data gaps and comparability? ▪ What kind of recommendations (if any) could be addressed to policy-makers to improve the existing set of indicators (and data) in terms of quality, coverage, reliability and accuracy? ▪ Any recommendation in order to "better" cover new or emerging OSH related risks / health outcomes or to develop new indicators to cover new and emerging risks related to the HeSCare sector?

Source: Panteia, vhp Human Performance and IKEI

1.3 Conceptual framework used in the context of this research

The conceptual framework for analysis is aimed at identifying and defining the core issues analysed in the study and supports the interpretation of the results and formulation of policy-relevant conclusions. Figure 1 presents the conceptual framework used for the study.

Figure 1: Conceptual framework for analysis of the health and social care (HeSCare) sector



Source: Authors' elaboration

To understand the state of play in OSH and working conditions in the HeSCare sector, several key aspects are considered in the context of this report:

- the characteristics of the workforce (such as gender, age, level of education, type of employment);
- the characteristics of the HeSCare sector (for example difference in healthcare systems, and public vs private provision); and
- exposure to OSH-related risk factors, including physical, chemical, biological, biomechanical, psychosocial and organisational ones.

These factors all play a role in determining health outcomes in the HeSCare sector.

All these elements influence existing OSH management practices within European HeSCare workplaces in a number of domains:

- risk management (for example the presence of risk assessments, characterisation of risk assessments, reasons for lack of risk assessments, the presence of preventive (work design) measures to cope with OSH-related physical, organisational, and psychosocial risks);
- OSH expertise (for example the use of internal and external health and safety services, the presence of measures to cope with OSH-related risks, access to external sources of OSH information and presence of OSH-related training activities); and
- worker participation in OSH issues (for example forms of participation, characterisation and discussion on OSH issues).

Additionally, in the context of this study, there has been a conscious effort to address the link between the impact on the health and safety of the HeSCare sector workforce and other key horizontal issues affecting the HeSCare sector stemming from other policy areas, such as public health policy and employment policy as well as the diversity of the workforce. This therefore includes:

- drivers of change within the HeSCare sector affecting OSH and management practices within workplaces: technical, economic, social, organisational and regulatory ones – such as COVID-

19, digitalisation, demographic changes, changes in family patterns, migration, and workforce mobility);
- the drivers (reasons) why HeSCare workplaces develop OSH management practices (for example legal obligations, meeting expectations from workers, avoiding fines and labour inspections, productivity or reputational reasons, and quality of (external) preventive services);
- the main barriers (difficulties) in addressing OSH issues within HeSCare workplaces (for example the lack of time and staff, complexity and paperwork, and the lack of awareness); and
- the economic costs and burdens (for workers, company and social security systems).

This study provides an up-to-date account of the state of play (using major EU surveys, as well as relevant administrative data) on elements related to:

- the trends over time in OSH risks, OSH management practices, and health outcomes;
- the existing differences by size of establishment;
- the existing differences among European countries;
- differences by workforce characteristic (age, gender, nationality and education level); and
- the existing differences within the sub-sectors, compared with the sector as a whole as well as regarding the above factors.

Throughout this report, there has been an attempt to expand beyond the state of OSH for HeSCare workers, to also explore the **linkages between the provision of quality care and the working conditions of the HeSCare sector workforce**. An important aspect of this is the key concept that there is no 'quality' care without a healthy and safe workforce, and that health and social care systems need to be adequately financed.

This links to the concept of '**Healthy Healthcare**',[15] a new interdisciplinary system-based perspective of healthcare practices encompassing three main pillars: (1) quality of patient care, (2) worker health and well-being, and (3) the organisation and practices of healthcare organisations (Løvseth, L. T., & de Lange, A. H., 2020). Healthy healthcare recognises that healthcare systems must be organised, managed, and financed in balance with the health and performance of available workers in mind. It also recognises that benefits in one pillar (for example patient care, workers health and organisational practice) can potentially disadvantage another pillar. Ultimately, a system-based perspective considering the dynamics between the patient(s), the worker(s), and the complex healthcare system will lead to a more resource-efficient delivery of high-quality healthcare services.

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 the following three main methods.

Review of studies and literature

Desk research was conducted to identify and compile existing relevant information on OSH issues and the HeSCare sector, with a preference for sources published in the last 5 to10 years (since 2014, approximately), including scientific and academic publications, and policy documents (such as those developed by the European Commission). In some specific cases, additional literature beyond the 5-to-10-year scope was used (see bibliography for a full overview of the sources used).

Data processing and analysis

Several data sources were used in the context of this study:

- European Survey of Enterprises on New and Emerging Risks (ESENER);
- European Working Conditions Telephone Survey (EWCTS);
- EU Labour Force Survey (LFS);

[15] Please see 'Healthy Healthcare: A systems perspective to integrate healthcare organisations, worker wellbeing, and patient care', available at: https://oshwiki.osha.europa.eu/en/themes/healthy-healthcare-systems-perspective-integrate-healthcare-organisations-worker-wellbeing

- EU-OSHA – OSH Pulse survey 2022; and
- European Statistics on Accidents at Work (ESAW).

Administrative data on occupational diseases (European Occupational Diseases Statistics (EODS)) were not exploited as part as this research[16]. This section describes how the data sets listed above were used. Most of the figures and tables provided in this report are based on 'descriptive statistics'. However, further in-depth statistical analysis was also carried out for ESENER and the EWCTS (more information is available in the appendices). Throughout the report, the summarised findings of these further analyses are set out in boxes, where relevant.

European Survey of Enterprises on New and Emerging Risks (ESENER)

Starting in 2009, EU-OSHA conducted three waves of this survey. ESENER looks at how European workplaces manage safety and work-related health risks in practice. Relevant variables from the ESENER surveys are either dummy variables, nominal or ordinal. Relevant descriptive statistics for these types of variables are frequency tables (to examine the distribution of a variable) and cross-tabulations (to compare the distribution of a variable across different groups of establishments: by country, establishment size and sector). In cases of cross-tabulations (by country, sector, or establishment size class), it is important to assess whether differences between groups represented in the survey reflect group differences in the population, or whether they may be caused by the sample selection. For each cross-tabulation, Pearson's chi-square test has been used to test the hypothesis that the distribution of a variable is independent from the grouping variable included in the cross-tabulation. The study only includes tables and figures where the differences between country, sector and/or establishment size class are significant (at a 5% significance level).

The study focuses on findings from the ESENER-19 survey; however, comparisons of the ESENER-19 results with the ESENER-14 results have also been made, whenever possible. The last two surveys (ESENER-14 and ESENER-19) are very similar, not only in the topics covered but also in the wording of the individual questions, the enterprise population covered and the target respondents. The datasets of these two surveys have been merged into a single dataset (for the relevant questions on OSH management), after which cross-tabulations were prepared with the survey year (2014 or 2019) as the grouping variable. Also, for these tables, statistical tests have been used to test the hypothesis that the distribution of these variables is the same for the two consecutive surveys.

Additionally, further regression analysis was carried out on factors impacting OSH management. This is explained further in Appendix B.

European Working Conditions Telephone Survey (EWCTS)

In 1991, Eurofound conducted its first European Working Conditions Survey. Since then, several more waves have been conducted. The last one, conducted in 2021, is also the first one where respondents were contacted via computer-assisted telephone interviewing (CATI). This survey is therefore referred to as the EWCTS rather than the EWCS. Because of this change in methodology, comparison with previous editions of the survey were not advisable.

Firstly, the relevant variables in the EWCTS were dichotomised (in general, a higher score implies 'risk present'). Next, analyses (weighted according to sample and country size) were performed, broken down to the HeSCare sectors per (non-member) country. Then the analyses were restricted to the EU-27 and HeSCare sector only, and comparisons were made for subsectors, gender, age groups, educational level, International Standard Classification of Occupations (ISCO) (2 digit); employment status; part-time versus full-time; working hours; and similarly these breakdowns for just the two occupational groups: health (associate) professionals. Lastly, the latter analyses were carried out for employees only (that is, without the self-employed).

Additionally, analysis was carried out on OSH risks in the HeSCare sector that are more frequently related with health and which groups of workers are the most at risk within the HeSCare sector. This is explained further in Methodological Appendix 2.

[16] At present, EODS are experimental statistics. The existence of different legal systems and procedures for the recognition of occupational diseases in Europe makes the comparative exercise difficult.

EU Labour Force Survey (LFS)

The LFS is a large European household sample survey on the situation in the EU labour market. Each year, the core questionnaire includes a module with a specific set of variables. The latest OSH-related module is the 2020 ad hoc module on "Accidents at work and work-related health problems". This ad hoc module has already been conducted four times (1999, 2007, 2013 and 2020) and will be repeated every eight years (next one planned in 2028). EU-OSHA provided a selection of relevant data from the LFS ad hoc modules on OSH for subsectors Q86, Q87 and Q88. Based on these data, graphics and tables of these results were created for inclusion in this report.

EU - OSHA – OSH Pulse survey 2022

This survey contains a representative sample of over 27,000 workers interviewed on the phone across all EU Member States, plus Iceland and Norway. The survey focuses on the mental and physical health stressors workers face and the OSH measures implemented in their workplace. Data collected from the survey were provided to the research team by EU-OSHA, who developed a number of graphs and charts for inclusion in this report. Upon request, EU-OSHA provided the research team with weighted charts for the EU-27 countries only, and the information without the responses from the self-employed have been included. The research team were able to analyse data for the HeSCare sector (NACE Q) as a whole, but not for subsectors 86, 87 and 88 separately, as these data were unavailable.

European Statistics on Accidents at Work (ESAW)

The ESAW is a collection of administrative data containing harmonised data on accidents at work from all EU Member States. From 2008 onward, data for all EU-27 Member States and EU aggregates are available. The national ESAW sources are the declarations of accidents at work, either to the accident insurance of the national social security system, a private insurance for accidents at work or to other relevant national authorities (for instance, labour inspection). Data from ESAW are disseminated by Eurostat on its website.

Fieldwork research: key informant interviews

Finally, 14 in-depth interviews were carried out with selected stakeholders at EU level with representative employers and employee organisations, European institutions and agencies as well as other relevant organisations and associations. These interviews took place between the beginning of August and the end of November 2023. The list of interviewed and surveyed organisations is presented in Table 3 below.

Table 3: Interviews carried out between August and November 2023

Organisation	Scope
European Commission (DG EMPL)	EU institution
European Early Career Nurses and Nursing Students´ Association (ENSA)	European association
European Federation for Family Employment (EFFE)	European federation
European Federation for Services to Individuals (EFSI)	Employers' organisation
European Federation of Food Agriculture and Tourism Trade Unions (EFFAT)	Trade union
European Foundation for the Improvement of Living and Working Conditions (Eurofound) *(2 interviews were carried out*)	EU Agency
European Hospital and Healthcare Employers' Association (HOSPEEM)	Employers' organisation
European Institute for Gender Equality (EIGE)	EU Agency
Federation of European Social Employers	Employers' organisation

Healthy Healthcare	European initiative
Hospital Organisation of Pedagogues in Europe (HOPE)	European association
The European Federation of Public Service Unions (EPSU)	Trade union
UNI Europa	Trade union

Source: Authors' elaboration

1.5 Overview of the structure of the report

Following this general introduction to the report, **Chapter 2** explores the main characteristics of the HeSCare sector, as well as the relevant policy context influencing OSH in the sector. An in-depth look at relevant data pertaining to companies and employment, gender, age and education level of the workforce in the sector is provided in Sections 2.1 and 2.2. This is based on relevant Eurostat data (structured business statistics and the LFS), the EWCTS, and the in-depth literature review and stakeholder interviews. Regarding companies, statistics on the number of companies, the average size and the types of establishments are provided (also at subsector level), as are employment statistics. The differences in care systems across Europe are also provided; the main characteristics of the workforce and the type of activities carried out is explained in Section 2.3, based on available data, a literature review and in-depth interviews. Regarding the characterisation of the workforce, the gender dimension, the ageing workforce, and the presence of migrants are highlighted, as is information on certain professions in the sector with increased exposure to OSH risks. Where data are available, these characteristics mentioned above are used to describe the OSH risks and OSH outcomes by subgroup in Chapter 3.

Chapter 3 studies the main working conditions and work-related health risks within the HeSCare sector. Several sources of information are used to determine the main working conditions and OSH-related risks, such as the LFS, ESENER and OSH Pulse surveys that contain several questions on the main OSH and psychosocial risks. The EWCTS has more specific information on the chemical risks and new information on biological risks. Regarding occupational diseases and work-related health problems, information is presented from the LFS and ESENER on work-related health problems. Information on accidents is taken from ESAW, as well as from the LFS. Additionally, an in-depth literature review and in-depth interviews have been carried out to complement the information.

Chapter 4 describes OSH management practices in the HeSCare sector, such as the presence and characterisation of risk assessments, the presence of preventive measures to cope with OSH-related risks, the use of health and safety services and other external providers, and the discussion on OSH issues at different levels. The main source of information to determine OSH management practices in the HeSCare sector is the ESENER-19 survey, for which there are many questions on this topic. A comparison is made over time by comparing the results to ESENER-14 (where relevant). In addition, some relevant information is available through the OSH Pulse survey (for example, initiatives available at workplaces) and through the EWCTS (for example, OSH training provided). Where relevant, data are provided at sector, subsector, country and company size level, with this information being complemented by the findings from the in-depth literature review and the in-depth interviews.

Chapter 5 examines the main drivers and barriers for OSH management. This includes an examination of the reasons that motivate companies to address OSH issues, as well as the main difficulties in engaging in OSH management practices in the sector. The main source of information to determine the drivers and barriers for OSH management in the HeSCare sector is ESENER, for which there are many questions on this topic. In addition, some relevant information is available through the OSH Pulse survey and through the EWCTS. The data have been complemented by an in-depth literature review, analysing key contextual factors influencing OSH management. Some of the key relevant contextual elements that have been included are COVID-19, digitalisation, demographic changes, lifestyle factors and changes to family patterns.

Chapter 6 looks at the extent and forms of worker participation in OSH management practices in the HeSCare sector. ESENER-19 is used as the main source of information for this chapter, with the data being complemented by an in-depth literature review, and results from the in-depth interviews.

While information on this topic remains limited, **Chapter 7** looks at the economic costs and burdens of poor OSH in the HeSCare sector. The chapter aims to address the levels of absenteeism and presenteeism in the HeSCare sector, as well as the impact of accidents on the presence of the workforce.

Chapter 8 provides the conclusions of the report and provides a number of policy pointers for OSH in the HeSCare sector. This chapter has been developed based on the analysis of the information gathered in the context of the other chapters in this report, as well as a validation focus group that was carried out with selected stakeholders.

The report also includes a **bibliography** and **methodological appendices** which outline the activities carried out in the context of the further data analysis activities.

2. Characterisation of the HeSCare sector

This chapter presents a general characterisation of the HeSCare sector. Firstly, a description is given of the main characteristics in terms of company structure and employment, which includes relevant EU level data. Secondly, information is provided regarding the main characteristics of the HeSCare sector workforce, such as the demographic composition and the impacts on working conditions and OSH.

2.1 Characteristics of HeSCare sector establishments

The HeSCare encompasses a diverse range of services and activities, including, among others, hospital activities, dental practices, residential care activities for the elderly and disabled and child day-care activities. The HeSCare sector consists of three sub-sectors:

- Healthcare (NACE 86)
- Residential care (NACE 87)
- Social work (NACE 88)

These three sub-sectors are explained in more detail in the following chapters.

2.1.1 The healthcare subsector

- **The European healthcare sector**

The World Health Organisation (WHO) states that a healthcare system consists of 'all organisations, people and institutions whose primary intent is to promote, restore or maintain health.' A healthcare system, in practical terms, comprises three essential components, 1) providing health services on an individual as well as on a community basis; 2) undertaking actions that facilitate the provision of healthcare services, such as finances, resources, and allocation thereof and 3) engaging in stewardship activities which aim to influence the health effects of interventions in other sectors, irrespective of whether their primary objective is to improve heath.

Work in healthcare includes short- and long-term activities which are provided for patients in various types of accommodation facilities such as general or specialty medical hospitals, sanatoria, preventoria, medical nursing homes, asylums, mental hospital institutions, rehabilitation centres and other medical facilities (European Commission, 2019a). It includes providing diagnostic and medical treatment in general and specialised medicine by both general practitioners and specialised surgeons (European Commission, 2019a). Additionally, this sector includes activities for health provided by hospitals and practicing medical doctors as well as paramedical practitioners who are legally recognised to treat patients (European Commission, 2019a).

The healthcare sector is highly fragmented with public providers on different administrative levels (local, regional, central) operating next to the private actors and non-profit organisations. One of the challenges that this can create is an inefficient and fragmented organisation of service provision in healthcare, with narrow and poorly defined scopes of practice for some professions and underdevelopment of multi-professional teamwork (WHO, 2022). The WHO elaborates that a healthcare system that is well-functioning must be founded on a reliable financing system, a workforce that is paid and trained well, reliable information and evidence-based knowledge as a basis for policies and decisions, accommodations and equipment that are in pristine condition, as well as the appropriate organisation and planning to provide quality medicines and technologies (WHO, 2022). How well a healthcare system is equipped to address the needs of the population at any level depends on the available budget for these healthcare systems (EU-OSHA, 2014).

Typically, **healthcare systems in Europe vary in healthcare spending and have limited human resources they can use to render high quality of care**. According to Eurostat data, in 2020, Germany had the highest level of current healthcare expenditure among the EU Member States (€432 billion), followed by France (€281 billion), Italy (€160 billion) and Spain (€120 billion). Also based on statistics from 2020, healthcare expenditure in Germany and France was equivalent to 12.8 % and 12.2 %, respectively, of gross domestic product (GDP), more than in any other EU Member States. The next highest ratios could be found in Austria (11.5 %), Sweden (11.4 %), the Netherlands (11.1 %) and Belgium (11.1 %). Spain, Portugal and Denmark were the only other EU Member States to record

double-digit ratios. By contrast, current healthcare expenditure accounted for less than 7.5 % of GDP in six Member States, with the lowest figures found in Luxembourg (5.8 %). However, relative to population size and in euro terms, current healthcare expenditure in 2020 was highest among the EU Member States in Luxembourg and Denmark, with the lowest levels of average expenditure per inhabitant found in Bulgaria and Romania.

Healthcare systems deal with resource issues in several ways, which, in turn, affects the OSH of the workers differently depending on their location. There have been several reforms within the European healthcare systems in the last few decades which have been based on several factors, such as developments in the reduction of costs, management of quality, evidence-based medicine, an aging population, changes in ICT, and more attention towards promotion and prevention in healthcare (EU-OSHA, 2014). There has also been an increase in private healthcare providers in Europe, and since the COVID-19 pandemic, there have also been debates on the merits and demerits of private as opposed to public healthcare systems (Eurofound, 2017; Corporate Europe Observatory, 2021). As European healthcare systems move towards more privatisation, working conditions tend to become poorer, healthcare workers are paid less, and job security decreases (ETUI, 2020).

In many EU Member States, access to public healthcare is linked to employment. This leads to an imbalance within countries, and across the EU in entitlement to healthcare. Accordingly, certain groups of people are more disadvantaged by this as they can fall outside public health insurance entirely. These include self-employed people, asylum seekers, homeless people, irregular residents, and Roma people, especially when there is a lack of residence documents. Others can be economically disadvantaged as some treatments and medicines are not covered by public insurance, such as chronically and mentally ill people (European Commission, 2019b).

- **Difference in healthcare systems in EU Member States**

European healthcare systems are funded through various means and organised in different ways. The most common funding means include financing through tax paid to the state, or another government entity; health insurance, either social, or private or voluntary in nature; out-of-pocket payments; and financial contributions made to health charities. Many European healthcare systems use more than one of these financing methods (European Commission, 2019b). There are also various systems in which healthcare is organised in Europe. There are generally two main categories in which countries organise healthcare: the first being the Beveridge Model, entailing universal health insurance, or service coverage, in which the healthcare system is publicly financed through taxation; the second is commonly referred to as the Bismarck model, where citizens are required to pay a private or national fund which provides them with care, which is also a publicly funded system. Thirdly, there are systems that require the citizens to be insured for healthcare, however, these systems are in whole or in part based on private insurance. The healthcare systems in the EU are mostly a mixture of both public and private (Ninsaúde, 2020).

- **Key trends affecting the European healthcare sector**

The healthcare sector is affected by the trends of an ageing population, coinciding with declining birth rates. This leads to a reduction in the workforce at large, and specifically in the healthcare sector. Due to the ageing population, **recruiting and retaining enough qualified employees for the healthcare sector is challenging**. The different healthcare systems react differently to this, and the countries' policies on this topic vary substantially. Some countries policy is mostly focused on the recruitment of healthcare workers to fill current and future needs. These are mostly wealthy countries, such as France and Nordic countries. Other countries, policy is mostly focused on retaining more of their workforce and preventing workforce migration, such as Czechia and Lithuania. These approaches have a profound influence on the workforce, which, in turn, influences OSH (European Commission, 2015).

2.1.2 Residential care

Under NACE code 87, residential care can be combined with either nursing, supervisory or other types of care as required by the residents. Facilities are a significant part of residential care services, and the care provided is a mix of health and social services, with the health services being largely some level of nursing services. Residential nursing care activities include those taking place in homes for the elderly, convalescent homes, rest homes with nursing care, nursing care facilities and nursing homes.

Residential care also includes the provision of residential care (but not licensed hospital care) to people with mental retardation, mental illness, or substance abuse problems. It also includes residential and personal care services for the elderly and disabled who are unable to fully care for themselves and/or who do not desire to live independently.

There is a wide range of different types of professional providers of residential care. These can be private or public, however it is difficult to establish a clear pattern concerning division in type of services between private or public among different Member States (Eurofound, 2020a). It can refer to economic activity, legal status, or ownership, however those aspects do not always have to be aligned (Eurofound, 2020a). In many countries, for example in Cyprus, private non-profit organisations support the public care system by providing care to long-term recipients (Eurofound, 2020a). Additionally, the division can be blurred on the workforce level with publicly employed managers in private residential care facilities (Eurofound, 2020a). The division of employment in public or private residential care differs between members States (Eurofound, 2020a). For example, in Romania although only 22% of care facilities are public, they employ 89% of the workforce within the sector (Eurofound, 2020a). Similar situations were reported in Slovakia and Slovenia (Eurofound, 2020a). Contrary, in Austria, Greece, Malta and the Netherlands more professional carers were employed in private establishments (Eurofound, 2020a). In Croatia and Hungary, the division was more or less equal (Eurofound, 2020a). Some member states, including Malta and Spain, noted a recent increase in the private residential care sector (Eurofound, 2020a).

2.1.3 Social work

Social work is connected with social care and is provided directly to the recipient (European Commission, 2019c). Social work is very diverse and encompasses activities ranging from child day-care to debt counselling or rehabilitation activities for unemployed people (Eurofound, 2023a). Formal home-based care, which encompasses formal services provided by medical professionals and professional caregivers, is also included within social work. Social work focuses on enabling individuals to lead dignified lives within their homes. The sector comprises diverse roles, including nursing care providers, home-based personal carers, and domestic workers, each contributing to the well-being of care recipients. However, the availability of formal services is often limited, leading to significant levels of undeclared employment (informal care) and unequal distribution of care responsibilities, particularly affecting women. Additionally, support for vulnerable groups such as refugees, homeless people and people in financial need are provided by social workers (European Commission, 2019d). The activities can be carried out by government offices, private organisations, including local self-help organisations, as well as by individuals (European Commission, 2019d).

Under NACE code Q88, social work activities do not include accommodation services, except on a temporary basis. Social work activities without accommodation for the elderly and disabled includes counselling, welfare, referral and similar services which are aimed at the elderly and disabled in their homes or elsewhere and carried out by government offices or by private organisations, national or local self-help organisations and by specialists providing counselling services. Other social work activities without accommodation include child day-care activities (such as activities of day nurseries for pupils, including day-care activities for disabled children), as well as welfare and guidance activities for children and adolescents, activities for the prevention of cruelty to children and others, household budget counselling, marriage and family guidance, credit and debt counselling services, community and neighbourhood activities, and activities for disaster victims, refugees, immigrants etc.,

2.2 Enterprises and employment in the HeSCare sector

2.2.1 Enterprises

As shown in Table 4, in 2021, the HeSCare sector included around 2.28 million enterprises in the EU-27; 99.8% of these enterprises employed less than 250 people and are thus considered small and medium sized enterprises (SMEs). Of these, 94.2% employed less than 10 people (micro enterprises). SMEs provide over 50% of the employment in the sector and are therefore a large job creator. Around 5,000 large companies (250 employees and more) are responsible for more than 40% of all employment in the HeSCare sector. Hospitals have on average most people employed, with an average employment

size of about 200 or more employees. This is followed by the residential nursing care enterprises, which have on average 118 employees.

Table 4: Key economic indicators for the HeSCare sector, EU-27, 2021

NACE rev 2	Sectors	Number of enterprises	Turnover (million euro)	Value added (million euro)	Average employment size
Q	**Human health and social work activities**	**2,279,242**	**887,066.08**	**579,454.65**	**6**
Q86	**Human health activities**	**2,075,367**	**666,641.39**	**421,290.10**	**4**
Q8610	Hospital activities	14,362	255,000.00	155,000.00	199
Q862	Medical and dental practice activities	1,019,059	279,568.05	182,706.19	3
Q8621	General medical practice activities	320,000	70,000.00	50,000.00	3
Q8622	Specialist medical practice activities	400,000	120,000.00	80,000.00	3
Q8623	Dental practice activities	280,000	89,000.00	50,000.00	4
Q8690	Other human health activities	1,041,946	132,000.00	83,000.00	2
Q87	**Residential care activities**	**37,178**	**130,703.25**	**90,660.90**	**70**
Q8710	Residential nursing care activities	9,200	56,926.70	39,024.22	118
Q8720	Residential care activities for mental retardation, mental health and substance abuse	*	15,542.41	11,056.65	*
Q8730	Residential care activities for the elderly and disabled	15,203	48,247.24	33,473.30	67
Q8790	Other residential care activities	7,508	9,986.90	7,106.72	25

Q88	**Social work activities without accommodation**	**166,697**	**89,721.43**	**67,503.66**	**14**
Q8810	Social work activities without accommodation for the elderly and disabled	73,258	46,645.35	36,051.12	18
Q889	Other social work activities without accommodation	93,439	43,076.08	31,452.53	12
Q8891	Child day-care activities	40,000	*	*	*
Q8899	Other social work activities without accommodation n.e.c.	*	30,000.00	*	*

Source: Panteia, based on Eurostat Structural business statistics (SBS) 2021
(*) Information missing.

2.2.2 Employment

The HeSCare sector is an important job generator in the EU economy. According to Eurostat Labour Force Survey statistics, in 2022, over 21,500,000 people were employed in the HeSCare sector (NACE Q). **Most of these employees work in the healthcare subsector**, with around 12.5 million employees. The residential care subsector is much smaller with around 4.1 million people employed. The social work subsector is also much smaller than the healthcare subsector, with around 5.1 million people working in this sector. As can be seen from the table below, the levels of employment in the HeSCare sector have been steadily increasing over the past 10 years, which can be seen across all subsectors. The HeSCare sector accounts for 11% of all employment across the total economy.

Table 5: Employment in the HeSCare sector in the EU-27, 2013-2022 (thousand people)

Year	Healthcare	Residential care	Social work	Total HeSCare	HeSCare as % of all NACE activities
2013	10,938	3,812	3,995	18,745	10.3%
2014	11,139	3,923	4,161	19,224	10.5%
2015	11,172	4,029	4,257	19,458	10.5%
2016	11,392	4,095	4,352	19,838	10.5%
2017	11,529	4,239	4,417	20,184	10.6%
2018	11,651	4,301	4,503	20,454	10.6%
2019	11,905	4,380	4,566	20,850	10.7%
2020	11,941	3,951	4,825	20,717	10.8%
2021	12,179	3,984	5,101	21,263	11.0%
2022	12,435	4,116	5,118	21,669	11.0%

Source: Panteia, based on information for Eurostat,EU Labour Force Survey, 2022

Most workers in the HeSCare sector are employed in hospitals, in nursing homes, care homes, medical practices and patients' homes (EU-OSHA, 2022a). The HeSCare sector is dominated by women, who accounted for 79% of the number of workers (based on data from 2022 from the EU Labour Force Survey), and migrant workers, where the latter fill the labour shortages. These labour shortages are resulting from the ageing of the workforce, in a sector where 40% of workers were above the age of 40 in 2018 (Eurofound, 2022a), as well as a lack of attractiveness and poor image of working in the sector, constituting elements such as (Garello et al, 2022):

- A poor image concerning salaries and working conditions.
- A profession, often exercised by women, with little social status in society.
- A negative image maintained by the media and public employment services.
- A lack of attractiveness that seems to be worse among young people.
- The improving image of the social services sector is undermined by the perceived deterioration of the working conditions reinforced by the health crisis.
- Few career prospects for employees in the same organisation or field, few opportunities to progress in related fields.
- Significant prevalence of psychosocial and musculoskeletal risks among HeSCare professionals.
- High absenteeism which reinforces the risks incurred by professionals, such as stress and burn out.
- Involuntary short term or part-time contracts, discontinuous or atypical working hours that make recruitment more difficult.
- A difficult work-life-balance.
- Heavy responsibilities.

Employment in the sub-sectors of the HeSCare sector

The largest subsector in HeSCare sector is healthcare, which provides employment to over 12 million people. In the EU-27, 62% of employees in the HeSCare sector work in the healthcare subsector. However, this share differs between the countries. The highest share of healthcare employees can be found in Slovakia, where 96% of HeSCare employees work in the healthcare subsector. The lowest share is found in Luxembourg, where only 26% of HeSCare employees are employed in the healthcare subsector. As is the case in general for the HeSCare sector, **most employees are female in the healthcare subsector** (76%). Similarly, the sub-sector includes a relatively low number of younger employees aged 15-24 years old (6%), which is lower than the HeSCare average and the total economy average.

In the EU 4.1 million people work within the residential care subsector (see Table 5). The sector (along with the other HeSCare subsectors) is facing growing employment, which is expected to continue, especially due to the increasing demand for residential care (EU-OSHA, 2022a). **The sector is not gender balanced, with a majority of female workers who occupy the low paid positions** (Eurofound, 2020a). Available data from Eurofound show that there are large differences between Member States in terms of the size of the long-term care workforce (which includes residential and non-residential long-term care). The share of employment in in the entire workforce differs between Member States; this share being the smallest in Greece (0.3% of the workforce) and the largest in Sweden (7.1% of the workforce) (Eurofound, 2020a). Member States differ also when it comes to the division of residential and non-residential long-term care, as in countries such as Austria, Hungary, Italy, Portugal and Malta over 75% of the long-term care workforce is employed in the residential settings. In comparison, countries such as France, Luxemburg, Sweden and Slovakia have over 35% of the long-term care workforce is employed in non-residential settings (Eurofound, 2020a).

Overall, in the past few years **the growth of the employment in the non-residential long-term care sector has been larger than in residential long-term care sector** (Eurofound, 2020a). Similarly, to the average in the HeSCare sector, the workforce of this sector is also highly imbalanced, when it comes to gender, with 81% of the residential care workers being women (Eurofound, 2020a). The most female-dominated employment in the sector is home live-in care (Eurofound, 2020a). For example, in Austria, 19 out of every 20 employees are female (Eurofound, 2020a).

Employment in the social work subsector accounts for 5% of the total workforce within the EU (Eurofound, 2023a). Similarly, to healthcare and residential care, **the social work subsector is dominated by women** (European Commission, 2023a). Due to the heterogenous character of the sector and the lack of a unified definition, there are many difficulties when it comes to establishing patterns concerning social work among Member States (European Commission, 2022a).

- **Special types of employment or roles in the HeSCare sector**

Some special types of employment or roles can be found in the HeSCare sector. This includes informal carers (as already slightly touched upon in the previous paragraph), live-in carers and home care workers. Each of these is associated with specific risks, due to the nature of employment or work role.

Informal carers

Approximately 44 million citizens of the EU provide informal long-term care, which is in addition to the number of people employed in the residential sector (Eurofound, 2020a). Despite changes in family patterns (e.g. reduced fertility) informal care provided by people from the recipient's social environment (family, friends, neighbours etc.) still plays a key role in meeting long-term care needs (Eurofound, 2020a). A Commission report from 2021 indicated that approximately 12% of the adult population in the EU is engaged in informal non-residential care (European Commission, 2021a). Despite this being a natural implication of social ties, informal care causes various challenges. In 59% of cases, **informal care is provided by women, which contributes to increasing gender inequalities in society**, due to for example, loss of income and competence (European Commission, 2021a). The European Commission estimates that women between the ages of 45 and 64 who provide informal care can lose on average EUR 18,000 of income per year if they stop working completely (European Commission, 2021a). It is estimated that 19% of part-time workers in the EU, works part-time because of informal child or elderly care (Eurofound 2020a). Additionally, **informal care in many cases pushes young women to work fewer hours**. Women aged 18-44 who provide a substantial amount of informal care, work an average of 29 hours per week compared to the 38 hours worked by women of this age group who do not provide informal care (European Commission, 2021a). Informal care may also result in a loss of skills and future income after their care stint, due to a lower likelihood of re-employment after their period of providing care (European Commission, 2021a). Due to the possibility of un-employment during and after care, informal carers are also facing the risk of reduction of future pension by up to 22% (European Commission, 2021a).

Live-in carers

Live-in carers are workers (with or without specific training) who render health or social care, while living in private homes of recipients (Eurofound, 2020a). Live-in care workers might be employed directly by the recipient, provided by an agency, or posted by the company from their country of origin (Eurofound, 2020a). Due to this specific nature of employment, **live-in care is associated with specific risks of exploitation and in some cases has been classified as modern slavery** (Eurofound, 2020a). The risks are even greater when this type of care is rendered by undeclared workers or undocumented migrants (Eurofound, 2020a). Live-in care is especially frequent in Austria, Germany, Greece, Italy, Cyprus, Malta and Spain (Eurofound, 2020a). This type of work can be characterised by particularly low pay and long work weeks (only one or half of a day rest period) (Eurofound, 2020a). Another risk associated with work as live-in carer is the **lack of an occupational definition on EU level that in turn leads to it being unregulated or covered by very distinct rules between Member States** (Eurofound, 2020a). For example, in Italy, live-in carers are covered by the same collective bargaining framework which regulates work of all domestic workers (European Economic and Social Committee, 2016).

Home care workers

Home care workers (which fall under NACE code 88 – Social work) provide care to those who are unable to function independently, due to disability, sickness, or old age, directly in people's private homes (EU-OSHA, 2014). This type of employment creates special risks. Firstly, such w**orkers are subjected to possible risks connected to the household environment, including poor air quality and exposure to chemicals** (EU-OSHA, 2014). There is also a **significant risk that safety measures are neglected due to lack of supervision and limited access to healthcare workplace protections**, while the risks connected to for example the spread of infections is similar to the ones in clinical settings (EU-OSHA,

2014). Additionally, travelling from one patient to another as a part of home-based care increases risks of road traffic accidents (EU-OSHA, 2014). Working in the private home setting **increases also psychosocial risk due to working in uncontrolled situations and having to deal directly with stressed family members and patients** (EU-OSHA, 2014). Home care workers are exposed to risks which are common in the HeSCare sector, however their unique situation, working in an isolated and unsupervised setting, makes them far more exposed to those risks (EU-OSHA, 2014). Domestic residential care, when the recipient is also the employer of the carer, is among the least regulated and the lowest paid jobs (Eurofound, 2020a).

2.3 Characteristics of the HeSCare sector workforce

2.3.1 Characteristics of occupations in the sector

There are many different occupations within the HeSCare sector. The International Labour Organisation (ILO) has identified four main categories of employees in the HeSCare sector, ordered from largest to smallest group in the European countries: nurses and midwives, physicians, personal care workers and others (ILO, 2023a). The share of each profession differs per country. For instance, the share of physicians in Finland is less than 10%, whereas in Greece this share is more than 20%. Another example is the personal care workforce, which is around 10% in Hungary and more than 50% in Sweden (ILO, 2023a).

Each subsector in the HeSCare sector has its own nature of work. Notably, within the healthcare subsector, the main jobs include nursing and caring professionals, such as qualified nurses, midwives, and caring personnel; physicians; as well as dentists, pharmacists and physiotherapists. This sector also includes traditional; paramedical; environmental and occupational health and hygiene professionals; dieticians and nutritionists; audiologists and speech therapists; optometric and ophthalmic opticians (ILO, 2023a). Residential care includes roles such as care workers, registered nurses, activity coordinators, as well as administrative workers and managers.

Social care workers who are personal carers provide practical support for adults with physical disabilities, learning disabilities, or physical or mental illnesses. Specific occupations within the social care sector include healthcare assistants, home-based personal care workers, health service managers, aged care service managers, psychologists, social work and counselling professionals, medical secretaries, social work associate (ILO, 2023a).

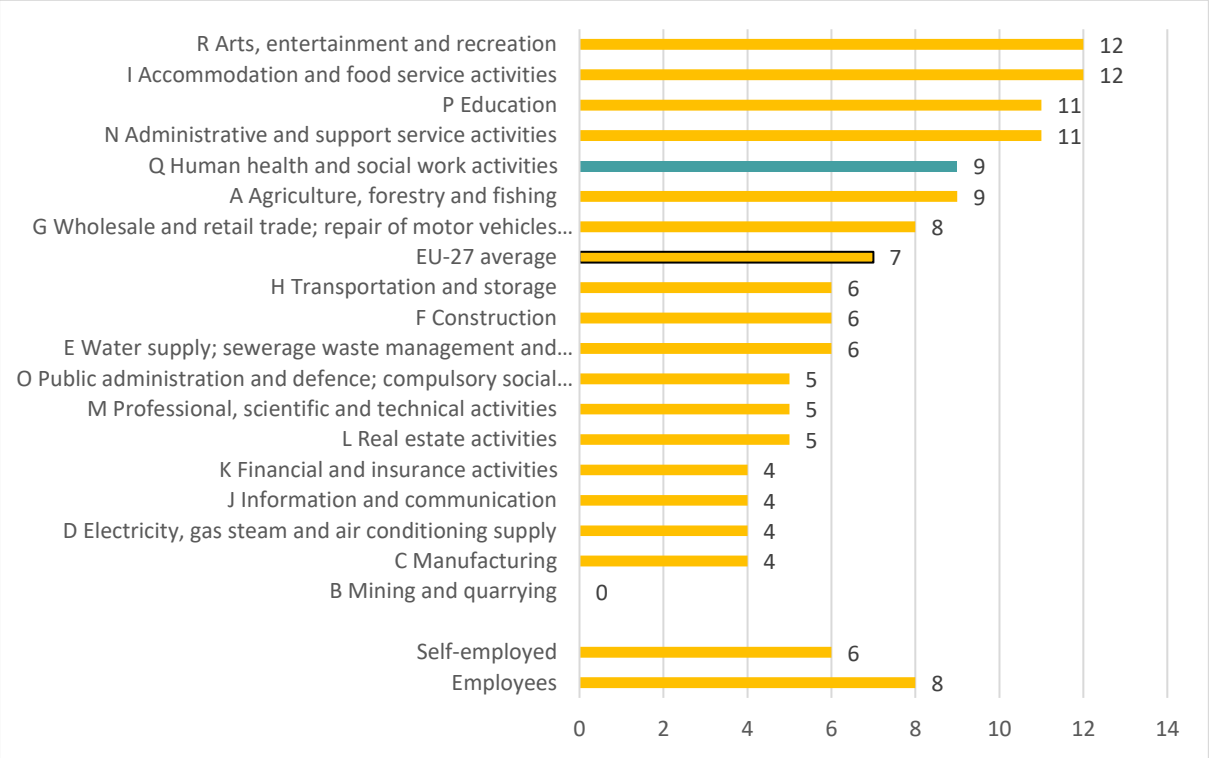
2.3.2 Precarious nature of work in the HeSCare sector

There is no widely recognised definition of what precarious work entails. For the purposes of this report, the definition of Eurofound (2018) is followed. Precarious work consists of three parts: insecure employment, unsupportive entitlements and vulnerable employees. Employment can be described as precarious when all three of these conditions take place. Precarious employment is also linked to the organisational risks faced by workers (see section 3.1.5). The issue of precarious work is important at European level. For instance, the European Parliament adopted a resolution on working conditions and precarious employment in 2017.[17] The resolution aims to eliminate precarious employment in order to have decent working conditions and adequate social security protection for all employees. Currently, there is a trend to reduce the standard permanent full-time employment contract. Consequently, the job insecurity increases for employees with these temporary and/or part-time contracts.

Figure 2 below based on data from 2021, shows that **precarious work is highly prevalent in the HeSCare sector**, with the share of workers with precarious employment condition being higher in the HeSCare sector (9%) than the EU-27 average across all sectors (7%).

[17] More information available at: https://www.europarl.europa.eu/doceo/document/TA-8-2017-0290_EN.html

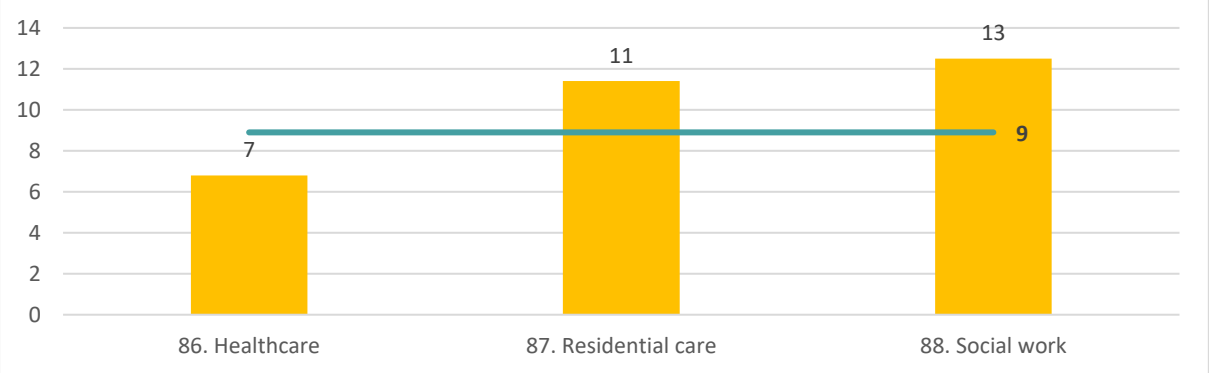
Figure 2: Percentage of workers with precarious employment conditions*, by sector, EU-27, 2021 (%)



Source: TNO based on the EWCTS-2021
Base: All workers in the EU-27.
(*) Precariousness defined as: part-time or fixed-term job, and difficulty making ends meet or multiple jobs.

Notably, the share of workers with precarious employment conditions differs among HeSCare sub-sectors (see Figure 3). **The highest share of these workers can be found in the social work subsector** (13%), which is almost twice as high as the share in the healthcare subsector (7%). Also, the residential care subsector includes more workers with precarious employment conditions than the average in the sector (11%).

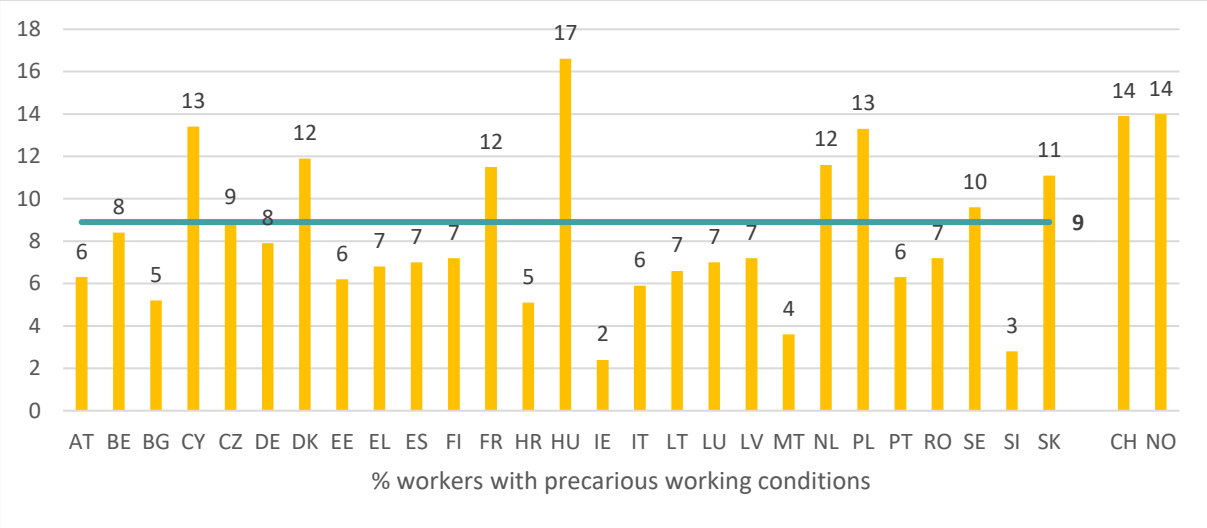
Figure 3: Percentage of HeSCare sector workers with precarious employment conditions*, by subsector, EU-27, 2021 (%)



Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27.
(*) Precariousness defined as: part-time or fixed-term job, and difficulty making ends meet or multiple jobs.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

The share of workers with precarious employment conditions in the HeSCare sector differs between the sectors and between Member States (see Figure 4). Ireland has the lowest share of workers with precarious employment conditions (2%) while the highest share is found in Hungary (17%).

Figure 4: Percentage of HeSCare sector workers with precarious employment conditions*, by country, EU-27 (+ CH and NO), 2021 (%)

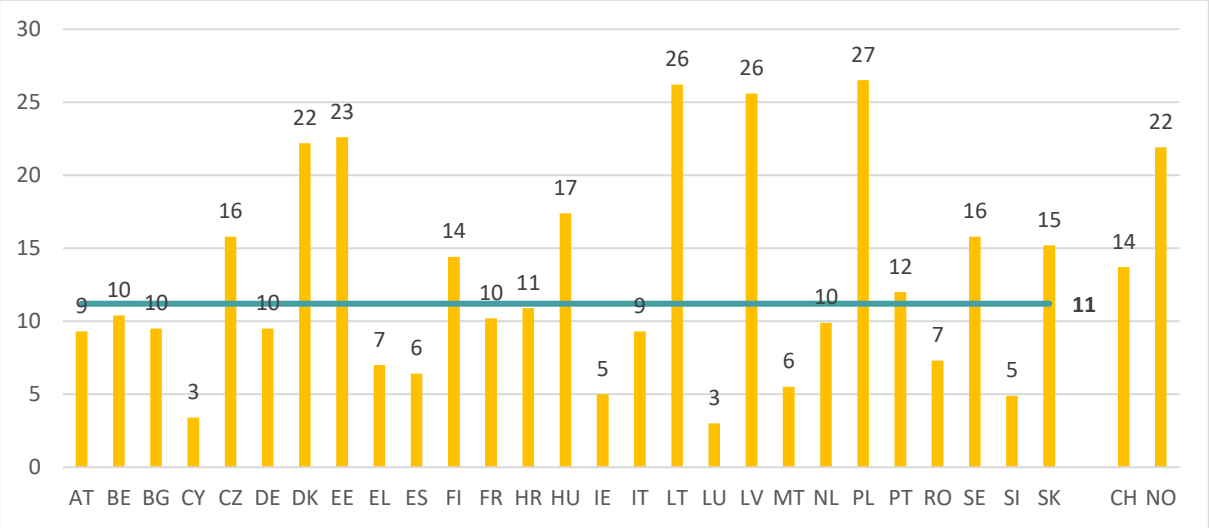


Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27, Switzerland and Norway.
(*) Precariousness defined as: part-time or fixed-term job, and difficulty making ends meet or multiple jobs.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

One of the consequences of having precarious employment conditions is the negative economic impact and inability to make ends meet. Employees holding multiple jobs could be an indicator for economic concerns, where data from the EWCTS show that, the share of people holding multiple jobs is slightly higher in the HeSCare sector (11%) than the EU average (9%). Among the sub-sectors, the highest share of workers holding multiple jobs is found in the healthcare subsector (12%), followed by social work (11%) and the residential care subsector (10%).

The share of workers in the HeSCare sector holding multiple jobs highly differs between the EU countries (see Figure 5). Cyprus and Lithuania ranking lowest with 3%, compared to HeSCare employees in Poland where 27% have multiple jobs.

Figure 5: Percentage of HeSCare sector workers holding multiple jobs, by country, EU-27 (+ CH and NO), 2021 (%)



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

2.3.3 Characteristics of workers in the HeSCare sector

- **Qualification levels, workplace learning and training**

The level of educational attainment in the HeSCare sector is an important aspect to consider in the context of working conditions, as employees with different educational levels have different experiences in their working environment. **Employees in the HeSCare sector typically possess a moderate level of education**, with a majority of workers having an intermediate or advanced education level (ILO, 2023a). Nearly all physicians within Europe have completed advanced levels of education. This is in contrast with the personal care workers, who have rarely completed advanced education. The share of nurses and midwives having advanced levels of education differs per country. In some countries such as Spain, nearly everyone working in this profession has an advanced level of education, whereas the share in Hungary is less than 20% (ILO, 2023a).

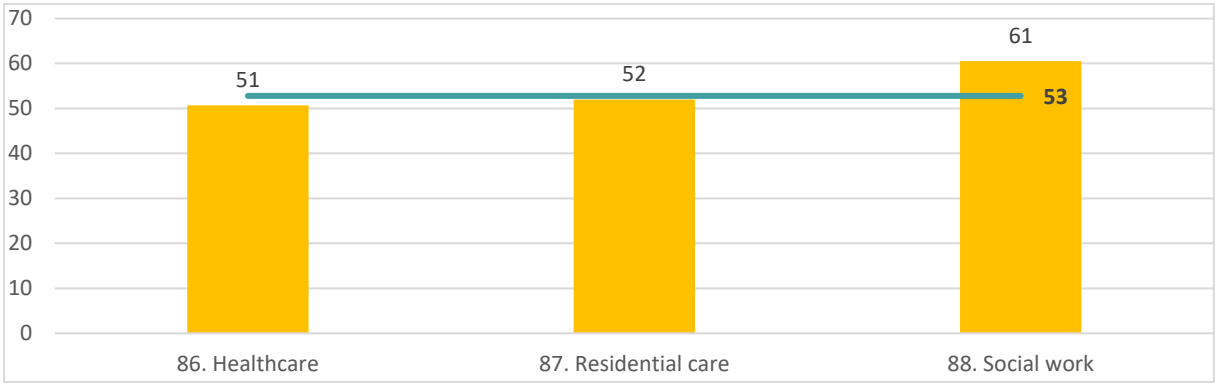
When compared to average educational qualifications across the entire EU economy, **workers in the HeSCare sector tend to have higher skill levels** (European Commission, 2014). This trend has been observed across all EU Member States, with the exception of Luxembourg and to a lesser extent – France (European Commission, 2014). According to the European Commission, it is crucial to tackle skill mismatches within the healthcare subsector because having workers with qualifications exceeding their roles can lead to potential inefficiencies in healthcare services and a misuse of human resources. This can result in job dissatisfaction and high turnover rates. Conversely, when workers lack the necessary skills, it raises concerns about the quality of care and patient safety (European Commission, 2014).

There is great diversity among formal caregivers in the HeSCare sector. They are not a uniform cohort, but they exhibit differences in their job roles, qualifications and the types of care they offer. For instance, nursing care providers often possess medical credentials, and assist with medical tasks such as wound care, pain management, medication administration, basic treatments, and regular health monitoring. On the other hand, some home-based personal caregivers, who usually lack formal healthcare qualifications, aid individuals with daily personal care activities like walking, eating, bathing, dressing, as well as household chores such as shopping, cleaning and cooking (ILO, 2018a).

Although employees in the HeSCare sector tend to have a higher skill level than average, 53% of employees in the HeSCare sector report that there are few job prospects for career advancement. This

is highest among workers in the social work subsector (61%), compared to the healthcare (51%) and residential care subsectors (52%) (see Figure 6).

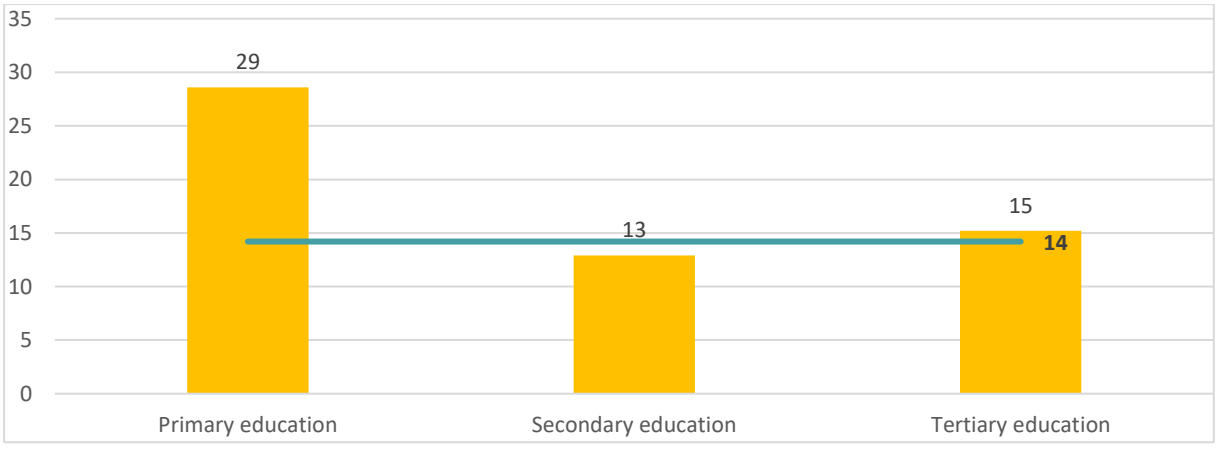
Figure 6: Percentage of HeSCare sector workers with few job prospects for career advancement, by subsector, EU-27, 2021 (%)



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

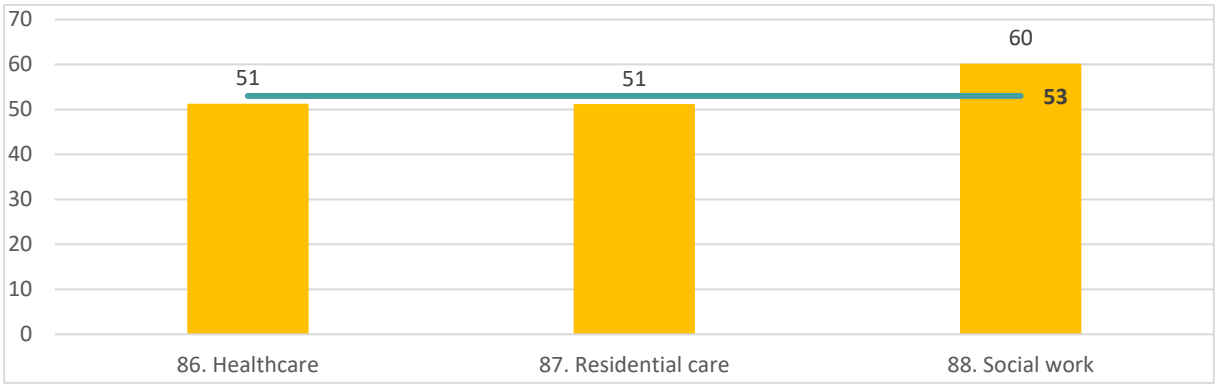
Looking at learning opportunities for employees in the HeSCare sector, **employees with a primary education level have the lowest opportunity to learn** (Figure 7). The share of workers having little learning opportunities is twice as high for this group (29%) as for the secondary (13%) and tertiary (15%) education levels. Additionally, **53% of the workforce in the HeSCare sector did not receive any training paid for or provided by the employer**, the highest number being for workers in the social work subsector (60%) (Figure 8). Training paid for by an employer typically refers to formal educational programs or courses that an employer sponsors or subsidises for their employees and can include attending workshops, seminars, or obtaining certifications relevant to the employee's job duties or career advancement.

Figure 7: Percentage of HeSCare sector workers with little learning opportunities, by education level, EU-27, 2021 (%)



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

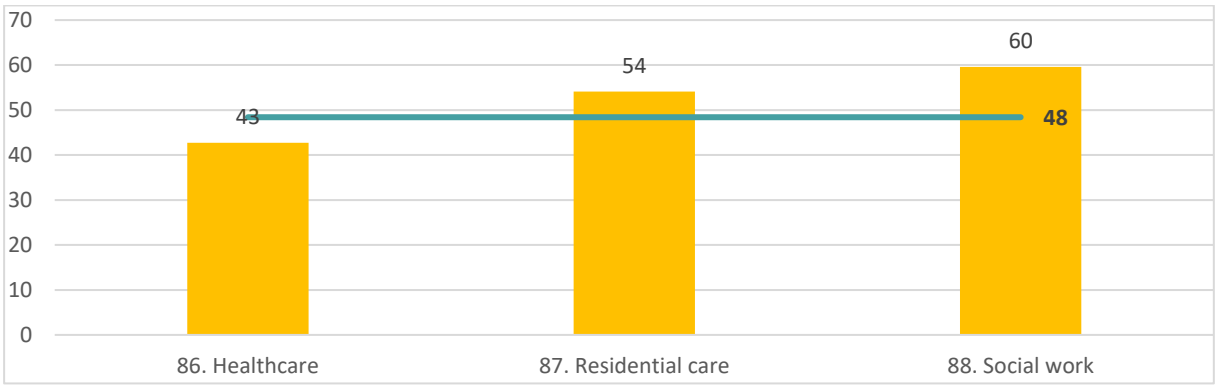
Figure 8: Percentage of HeSCare sector workers that received no training paid for or provided by your employer over past 12 months, by subsector, EU-27, 2021 (%)



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

Finally, **48% HeSCare workers did not receive any on-the-job training** (provided by co-workers or supervisors and involving learning and skill development occurring whilst performing the actual duties of the job) **during the past 12 months** (Figure 9). This slightly differs between the sub-sectors with this being the case for 43% of employees working in healthcare, 54% in residential care and 60% in social work. This makes again the social work subsector the one with the lowest training opportunity. On the job training is often hands-on and practical, where new employees shadow experienced workers, receive guidance from supervisors, and gradually assume greater responsibilities as they gain proficiency.

Figure 9: Percentage of HeSCare sector workers that received no on-the-job training (co-workers, supervisors) over past 12 months, by subsector, EU-27, 2021 (%)



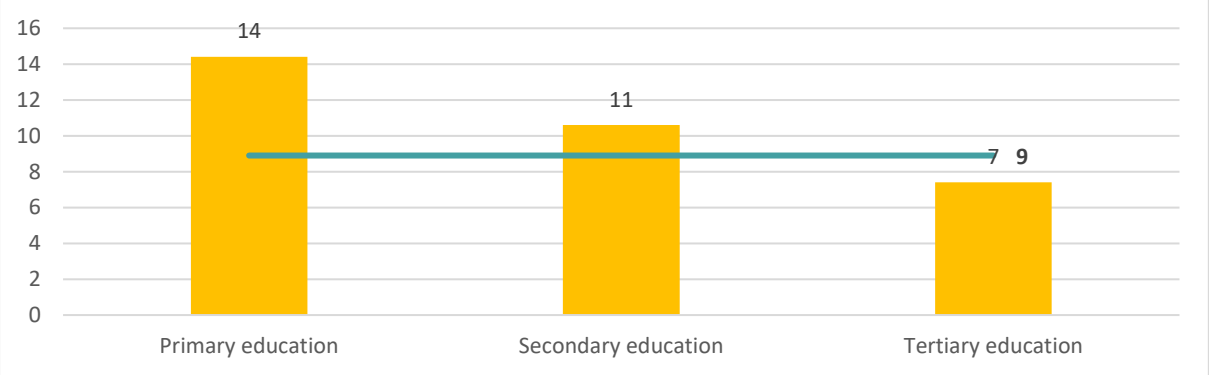
Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

Although these numbers tend to indicate that education and training lack priority, efforts are being taken to increase training and education in the HeSCare sector. For example, the ILO Nursing Personnel Convention, 1977 (No. 149[18]), which mandates that nursing personnel receive relevant training and education to be able to fulfil their roles to the best extent possible. Countries and policy-makers would benefit from implementing national legislation and other relevant regulations to ensure adequate competence and qualification among HeSCare workers. The multi-agency SDG3 global action plan and other efforts have been taken to harmonise HeSCare education curricula across different countries (ILO, 2023b).

[18] More information available at: https://webapps.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C149

Being employed in a job with precarious employment conditions can be associated with educational attainment. **HeSCare workers with only a primary education [19] are more likely than higher educated workers to have precarious employment conditions** (14%). This share is twice as high as for employees with tertiary education, for which only 7% has precarious employment conditions. The share of employees with precarious employment conditions and having secondary education is 11% (see Figure 10).

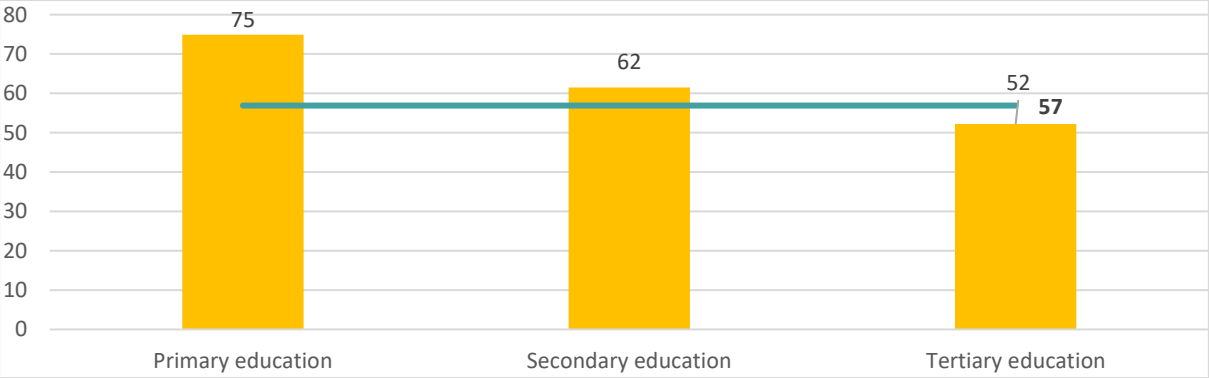
Figure 10: Percentage of workers with precarious employment conditions* in the HeSCare sector, by education level, EU-27, 2021 (%)



Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27.
(*) Precariousness defined as: parttime or fixed-term job, and difficulty making ends meet or multiple jobs.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

Also, **the extent of the influence that employees in the HeSCare sector have both on their own work and within the organisation is related to educational attainment**. Three out of four HeSCare employees with a primary education level are experiencing low task autonomy (75%). This is higher than for employees with secondary (62%) and tertiary education levels (52%) (see Figure 11).

Figure 11: Mean scores of HeSCare sector workers with low task autonomy*, by education level, EU-27, 2021 (%)

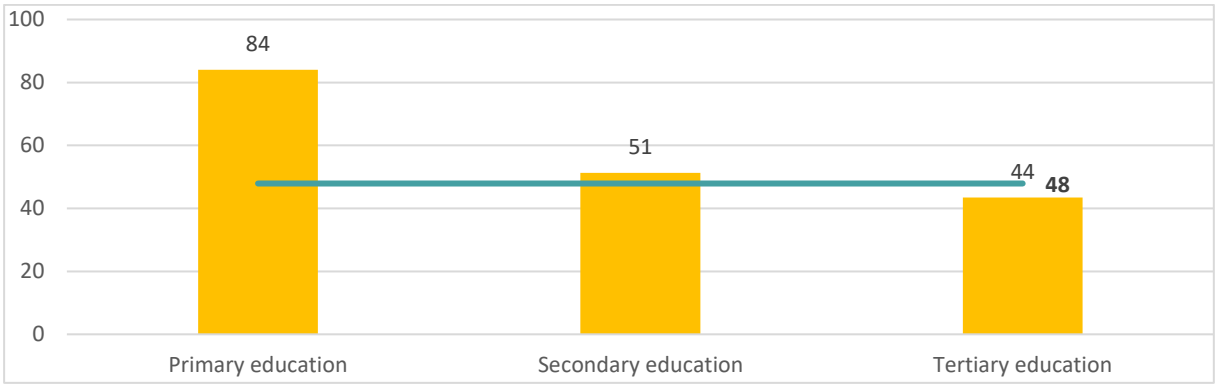


Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27.
(*) Deciding never/rarely/sometimes yourself on 'order of tasks'; 'methods'; 'speed or rate of work'. Dichotomised 3-item scale.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

The **influence employees may have on the higher organisational level is lower for HeSCare employees with a primary education level attainment than for employees with a secondary or tertiary education level**. More than 80% of employees with a primary education level report a low level of influence, whereas only half of the employees with higher education level experiences this (Figure 12).

[19] Occupations with primary education include: 40% cleaners and helpers, 39% personal care workers and 7% food preparation assistants.

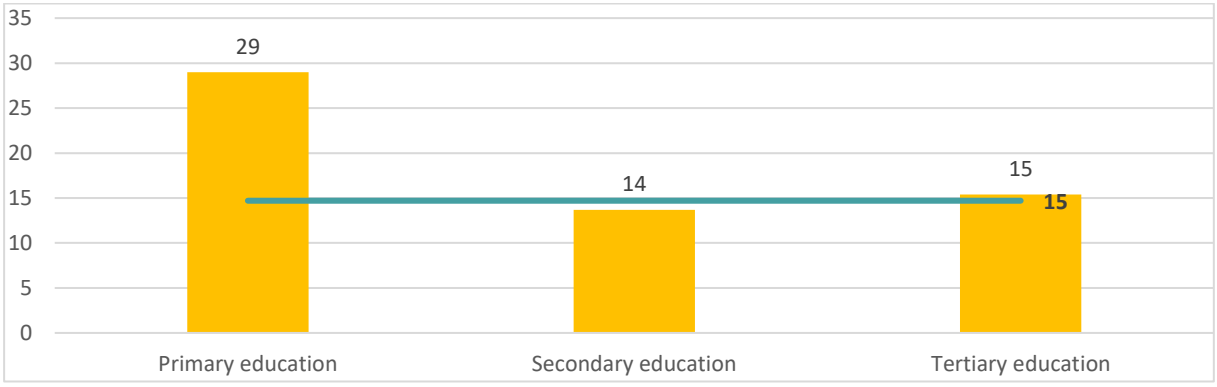
Figure 12: Mean scores of HeSCare sector workers with low organisational participation*, by education level, EU-27, 2021 (%)



Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27.
(*) Never/rarely/sometimes 'can influence decisions'; 'consulted about objectives'; 'involved in improving work organisation/processes'. Dichotomised 3-item scale.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

Education attainment is also positively correlated with discrimination at work. **Lower educational attainment is associated with a higher experience of discrimination**, where 29% of HeSCare employees with primary education level have experienced discrimination at work in the past 12 months. This number is twice as high than for secondary education (14%) and tertiary education level (15%) (Figure 13).

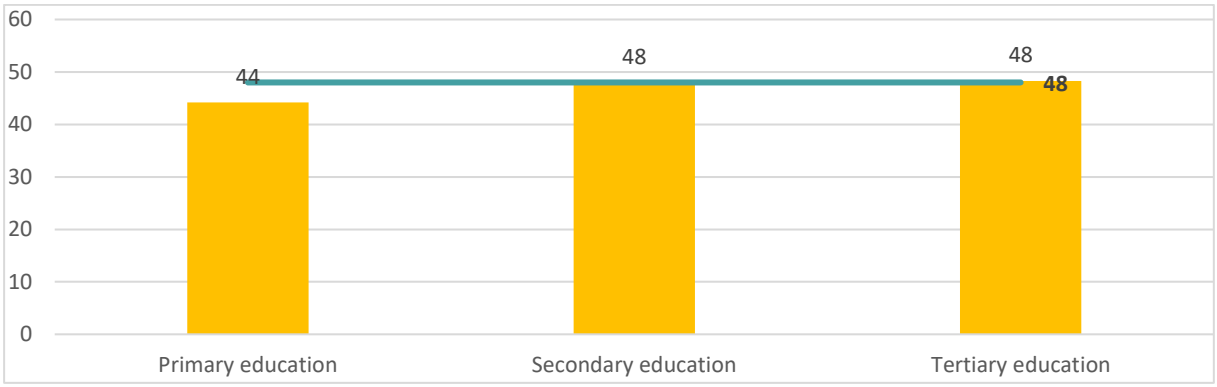
Figure 13: Percentage of HeSCare sector workers that have been discriminated at work, over past 12 months at work, by education level, EU-27, 2021 (%)



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

Education level attainment is not associated with the perception of safety and health at work, whereby reports of health and safety is at risk due to their employment is the same for employees with secondary and tertiary educational attainment (48%) and slightly lower for primary education (44%) (Figure 14).

Figure 14: Percentage of HeSCare sector workers reporting that their health or safety is at risk because of work, by education level, EU-27, 2021 (%)



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

- **Employment contracts, part time work and undeclared work**

The majority of HeSCare workers hold a permanent contract, ranging from slightly more than 60% in Greece to over 90% in Romania (ILO, 2023a). There are also significant differences depending on the subsector and certain groups of workers (Eurofound 2020a). However, as a result of cost and efficiency policies in the HeSCare sector the **non-standard forms of employment contract have become more prevalent** (ILO, 2023a). Other forms of employment are temporary contracts, self-employment and zero-hour contracts or part-time contracts. Table 6 shows that the proportion of workers holding **temporary contracts is slightly higher in the HeSCare sector** (15%) than the overall economy (12%). Temporary employment has served as a crucial adjustment factor for businesses, as temporary contracts have exhibited the most significant responsiveness in the labour market since the start of the economic crisis (European Commission, 2014).

Table 6: Characteristics of the HeSCare employment (NACE Q) and total economy, EU-27 (%)

	All sectors	HeSCare sector
% Temporary employment	12	15
% Part-time work	18	31
% Undeclared work	3	8

Sources: Eurostat (2022) (Temporary employment and part-time work, year 2022),
Special Eurobarometer 498: Undeclared work in the European Union (2019) (Undeclared work).

In the long-term care sector (residential and no-residential care), zero-hour contracts (considered part-time) are more prevalent in Finland, Sweden and the UK. In Finland for example, such contracts are mostly used in the HeSCare sector, amounting to 15,000 contracts in 2019 (Eurofound, 2020a). In contrast, in some Member States, zero-hour contracts are prohibited, such as in Austria, Lithuania, Poland, Slovenia and Spain (Eurofound, 2020a). In Poland and Slovenia employers can require part-time employees to work overtime if it is stated in their contracts (Eurofound, 2020a).

A separate category includes self-employed workers in the HeSCare sector, which is much more common in the medical and dental practices (23%) and the other healthcare activities[20] (37%) than in hospitals (1%) (Eurofound, 2022a). In the long-term care sector (comprising residential and non-residential care), self-employment is relatively uncommon, accounting for only 1.9% of workers in the HeSCare sector. Most of these workers are primarily concentrated within the home care services

[20] Which includes activities for human health not performed by hospitals or by medical doctors or dentists, activities of dental paramedical personnel such as dental therapists, school dental nurses and dental hygienists, who may work remote from, but are periodically supervised by, the dentist, as well as activities of medical laboratories.

(Eurofound, 2020a).) Looking at the long-term care sector (encompassing residential and non-residential care) compared with the average in the HeSCare sector, the prevalence of permanent contracts is relatively high, particularly within residential settings (Eurofound, 2020a).

Across the total economy, 3% of employees work (sometimes) undeclared to the authorities for tax, social security and/or labour law purposes (Special Eurobarometer, 2019). However, **8% of all undeclared work is performed in the HeSCare sector** (Special Eurobarometer, 2020). This share differs per country. For instance, in Estonia 17% of all undeclared employment is concentrated in the education, health, and social work subsector, whereas in Finland this share is only 1% (Special Eurobarometer, 2020).

Undeclared work has a negative impact on workers as it limits their access to various benefits and decreases the workers' future pensions, as less contribution is paid by them or their employers (European Commission, 2014). Workers who work informally also face the risk of poorer working conditions and work-related health risks, due to the disregard of safety regulations in their workplace (European Commission, 2014). In 2019, there were 3.8 million undeclared workers in the EU engaging in personal care activities (European Labour Authority, 2021). The European Labour Authority (ELA) estimates that out of all the people employed in personal care activities, 34% work undeclared (European Labour Authority, 2021). The root of this problem is the exclusion of home-based care from the inspections mandate of the enforcement authorities. This results from the lack of recognition of the household as a workplace (European Labour Authority, 2021).

There is an increased prevalence of part-time employment in the HeSCare sector, with approximately 31% of individuals in 2022 being employed on a part-time basis across the sector, as seen in Table 6. This is high compared to other sectors, where only 18% of employees work part-time. **The number of part-time workers is highest in the long-term care sector (residential and non-residential)**, in which, around 42% of the workers hold part-time positions; double the rate observed across the entire workforce (Eurofound, 2020a). Also, the share of part-time workers differs between European countries. The highest number of part-time employees in the HeSCare sector is found in the Netherlands, where over 75% work part-time. Notably, this is higher than the country average of 55% part-timers in the entire economy. This high percentage contrasts with Romania, where hardly anyone works part-time in the HeSCare sector (ILO, 2023a). Except for the Netherlands, all EU countries have less than half of the workforce working part-time (ILO, 2023a). **Women are more likely to work part-time than men in the sector.** Again, this share is highest in the Netherlands, with over 80% of women working part-time (ILO, 2023a). Notably, also around 40% of men work part-time in this country. Interestingly, the part-time rate was roughly the same between men and women in Portugal, Lithuania and Finland (ILO, 2023a).

There are different reasons why people work part-time. It can be due to their own health situation, including health problems or disabilities of an employee. Another reason is the difficulty to find a permanent full-time job (ILO, 2018b). This was the case for 30% of part-time workers in the EU in 2014. A Eurofound report from 2020 indicated that this specific issue is experienced by 30% of part-timers in non-residential care and 20% in residential care (Eurofound, 2020a). The main reason for women in general to work part-time is providing unpaid care for children or vulnerable adults. This is similar for women in the HeSCare sector (Eurofound, 2020a). Working part-time is not without risk. Employees who work part-time are at risk of having less favourable working conditions than full-time employees. Including but not limited to lower salaries and a lack of additional training, promotion and job security. Because of this, part-timers have a higher risk of living in poverty (ILO, 2018b).

2.3.4 Working conditions in the HeSCare sector

Despite the importance and constant growth of the sector**, working conditions in the HeSCare sector tend to be much worse than in other sectors** (EU-OSHA, 2022a). **The workers of the HeSCare sector are facing especially high work intensity and high emotional demands, which are negatively impacting their health and well-being** (EU-OSHA, 2022a). This indicates that the job demands (such as work intensity, physical risks and unsocial work schedules) are higher than the job resources (such as social support and flexibility of working hours) (Eurofound, 2023b; JD-R model, Bakker and Demerouti). Notably, th**e HeSCare sector is the sector with the highest share of strained jobs**, as half of the jobs (50%) can be classified as strained (Eurofound, 2023c).

- **Working at high intensity**

Employees in the HeSCare sector experience high work intensity, referring to working at very high speeds and having tight deadlines. According to the EWCTS, the share of employees experiencing a high work intensity is slightly higher in the HeSCare sector (41%) than the average (38%). About half of the workforce in the healthcare subsector experiences a high work intensity, while only one in three employees in the residential care subsector and less than one in three in the social work subsector experience a high work intensity. Based on data from the EWCTS, the social work and the residential care subsectors are equally challenging sectors to work in, characterised by relatively low wages, physically and mentally demanding tasks, weekend and night shifts and heightened stress levels.

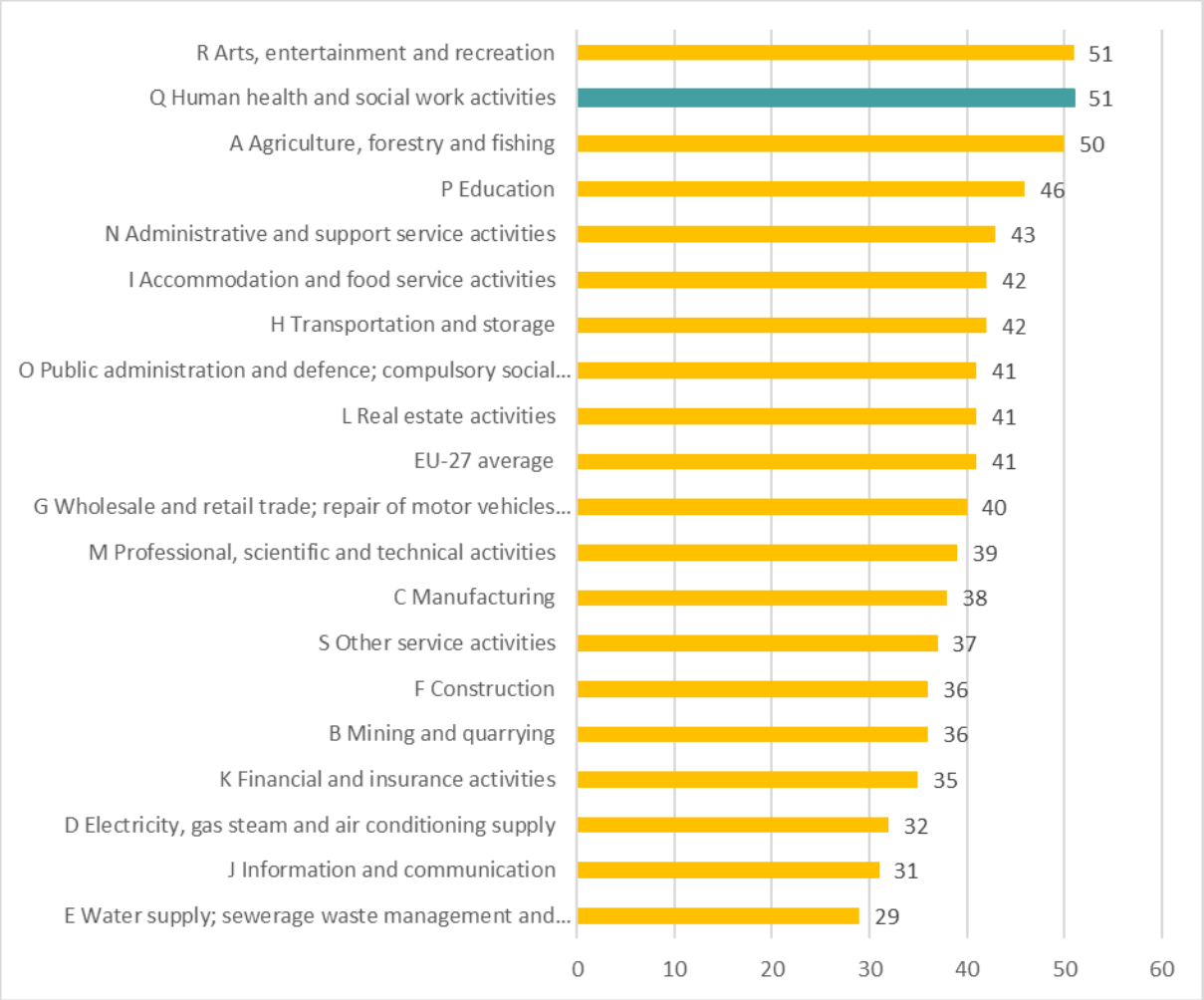
The HeSCare sector has experienced substantial consequences from the COVID-19 pandemic, as a vast number of workers have noted the increase in stress attributed to factors such as excessive workload stemming from a rise in the number of patients and staff shortages (EU-OSHA, 2022a). In a survey focused on social care from 2020, the findings indicate that a majority of workers (81%) experienced a substantial rise in their workload since the start of COVID-19, of which 56% reported extended working hours (Ravalier et al. 2023).

The COVID-19 pandemic also indirectly impacted HeSCare employees' working conditions. For example, the pandemic led to a significant exodus from the HeSCare sector, resulting in a substantial reduction in the workforce. As a result, the workload increased overwhelmingly concordant with an increased demand for labour within the sector (Viva Salud, 2023). Additionally, due to the noted rise in overall workload, the work environment in this sector is characterised as very demanding and disorderly (Veje M., et al. 2023). Time constraints were prevalent, with increased occurrences of overtime work in comparison with other sectors (Eurofound 2022f). Additionally, there were grievances regarding a perceived deficit in professional emotional support, particularly for those working during nights and weekends. Concerns were raised about the inadequacy of planning for work schedules and staffing (Veje M., et al. 2023).

- **Low payment for achievement**

Low payment for achievement is experienced by 51% of employees within the HeSCare, as shown in Figure 15. This share is significantly higher than the EU-27 average across all sectors (41%). The situation is similar across the three sub-sectors in the HeSCare sector.

Figure 15: Percentage of workers experiencing low payments for achievements; effort-reward imbalance, by sector, EU-27, 2021 (%)[21]

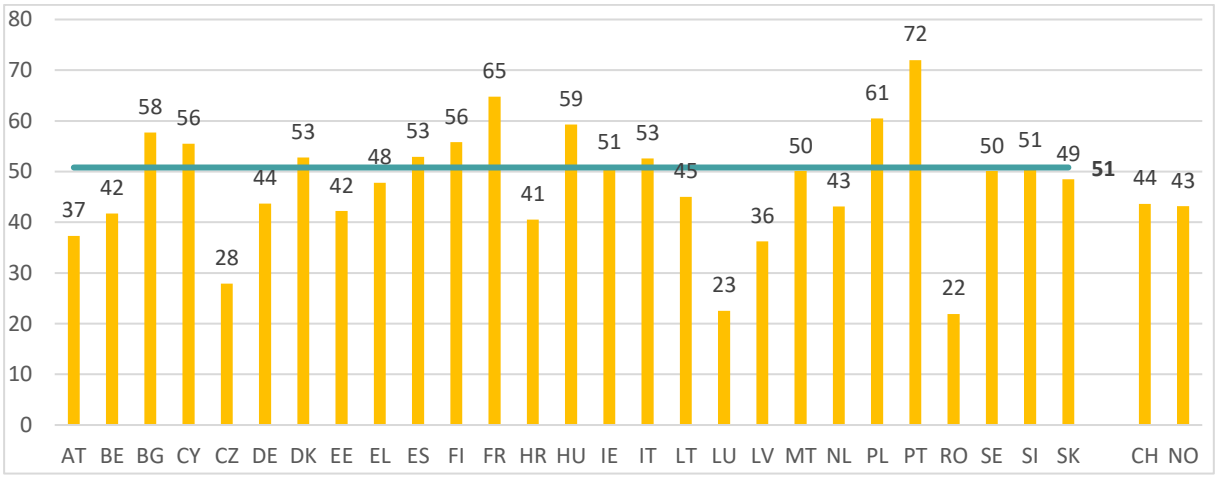


Source: TNO based on the EWCTS-2021
Base: All workers in the EU-27.

At the country level, Figure 16 shows large differences in workers experiencing low payments in relation to achievements, with 72% of workers in the HeSCare sector in Portugal indicating this, whereas this is indicated by only 23% and 22% of workers in Luxembourg and Romania, respectively.

[21] The question (from the EWCTS questionnaire) is "Considering all my efforts and achievements in my job, I feel I get paid appropriately."

Figure 16: Percentage of HeSCare sector workers experiencing low payments for achievements; effort-reward imbalance, by country, EU-27 (+ CH and NO), 2021 (%)



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

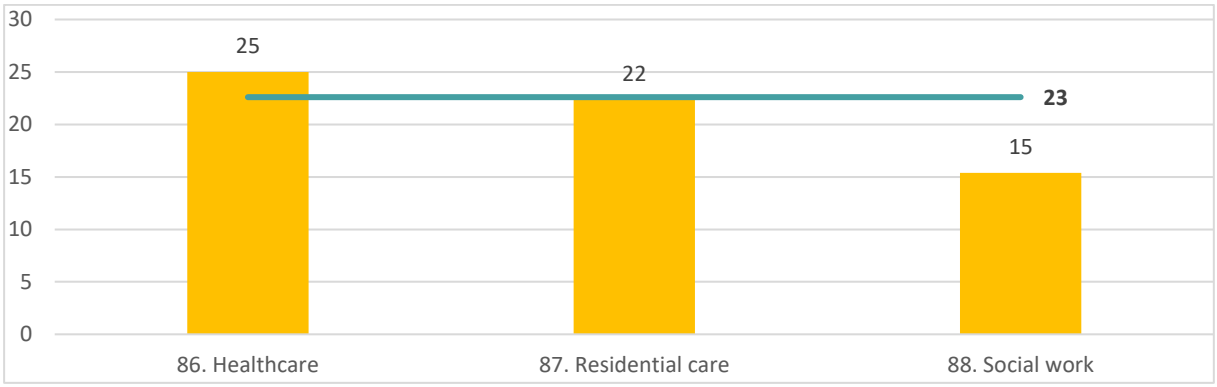
A low payment for achievement is especially the case for nurses and midwives, who are among the most essential workers within the sector. These professions are traditionally predominantly occupied by women, with four out of five nurses worldwide being women. Although they contribute significantly to a country's health services, employees within this profession are often overworked, underpaid and undervalued (ILO, 2023c). As well as nurses and midwifes, care workers are also often underpaid (ILO, 2023c). A similar case are physicians, who are the most likely to work long hours, with data in most EU states indicating that they work more than 40 hours per week. These long working weeks can also result in a feeling of not being awarded proportionally for achievements (ILO, 2023c). Workers who are employed part-time are especially facing a higher risk of being underpaid. **This issue is disproportionately more affecting women, who are dominating the profession of personal carers and who are in general more likely to work part-time** (ILO, 2023c).

The underpayment of workers within the HeSCare can be connected to cuts in public funding, which are the result of measures to combat economic crises across Europe. Workers pay within the sector is also adversely affected by the economic climate and costs-of-living crisis (WHO, 2022).

- **Work-life balance**

Workers in the HeSCare sector encountered challenges in maintaining a satisfactory work-life balance. The share of employees in the HeSCare sector reporting that they have difficulties managing their work-life balance is higher (23%) compared to the EU-27 average across all sectors (19%). At the subsector level, workers in the healthcare subsector are most likely to report an unsatisfactory work-life balance (25% of workers, compared to 22% in residential care and 15% in social work), as shown in Figure 17.

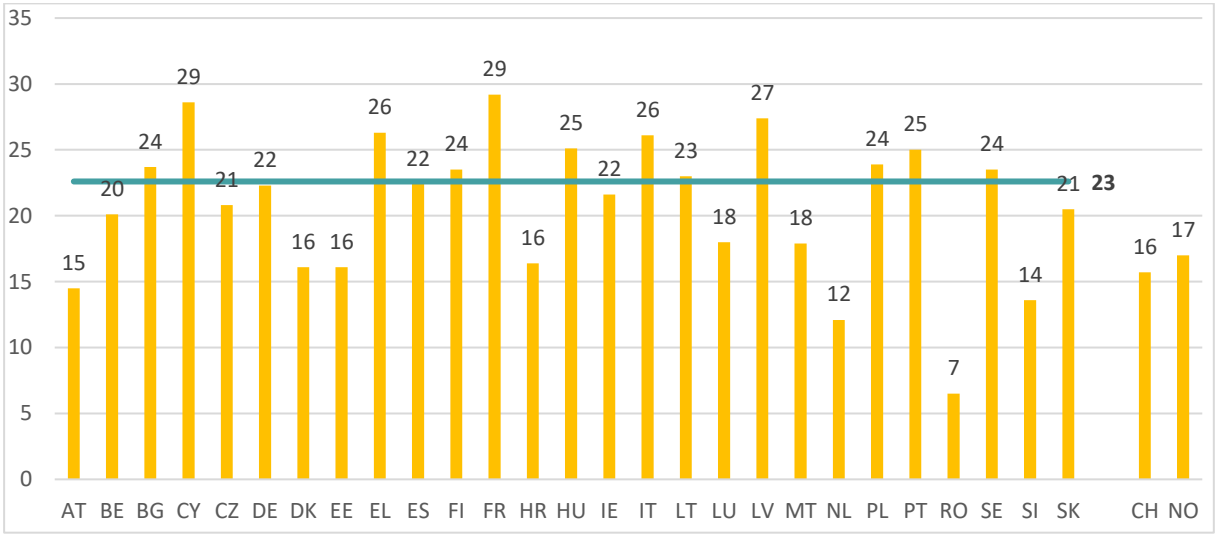
Figure 17: Percentage of HeSCare sector workers reporting a 'not very well/not at all well' work-life balance, by subsector, EU-27 (%)



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

The share of HeSCare employees reporting problems to fit in their working hours with family and social commitments outside work differs between the different countries. HeSCare employees in Romania have the best work life-balance, with only 7% indicating having difficulties with it. HeSCare employees in Cyprus and France report the worst work life-balance, with 29% indicating having issues to combine work with their activities outside work (Figure 18).

Figure 18: Percentage of HeSCare sector workers reporting a 'not very well/not at all well' work-life balance, by country, EU-27 (+ CH and NO), 2021 (%)

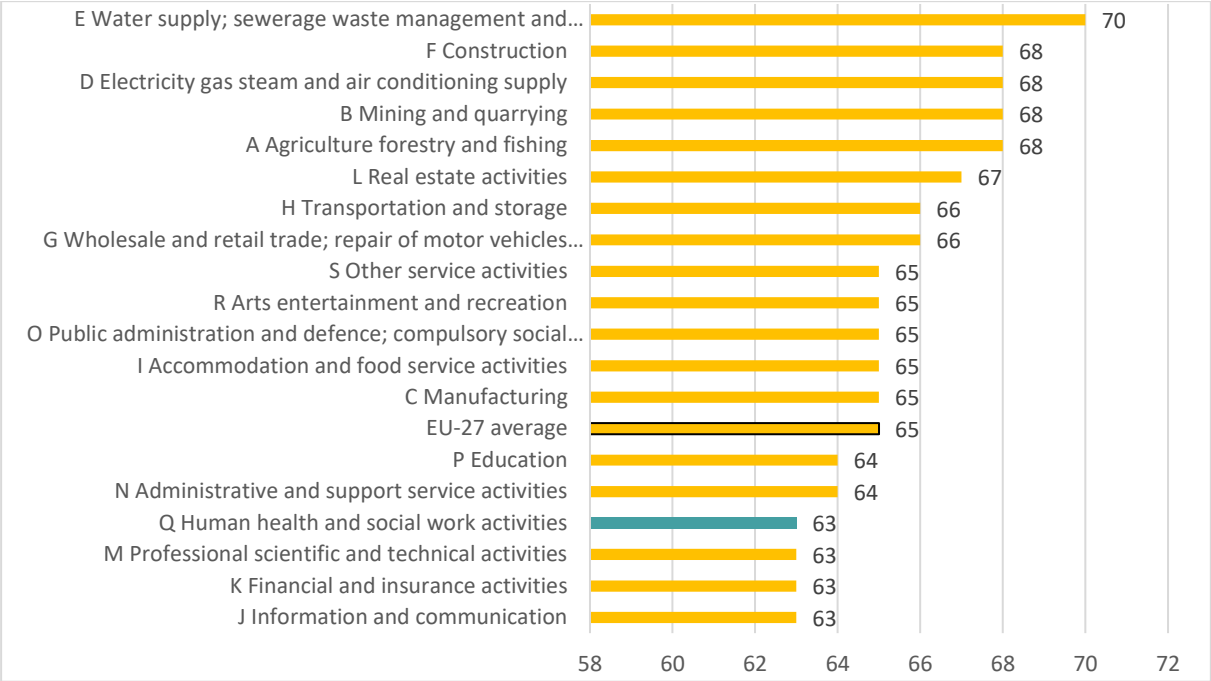


Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27, Switzerland and Norway.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

The **World Health Organisation - Five Well-Being Index (WHO-5)** is a short self-reported measure of current mental wellbeing, which was first introduced in its present form in 1998.[22] HeSCare workers score slightly lower (63%) on the Well-Being Index when compared to the EU-27 average across all sectors (65%), as shown in Figure 19. Despite the number being only slightly lower, the HeSCare sector ranks among the four sectors with the lowest wellbeing rating according to the WHO index.

[22] The 5 questions in the well-being index are: (1) 'I have felt cheerful and in good spirits', (2) 'I have felt calm and relaxed', (3) 'I have felt active and vigorous', (4) 'I woke up feeling fresh and rested' and (5) 'My daily life has been filled with things that interest me'.

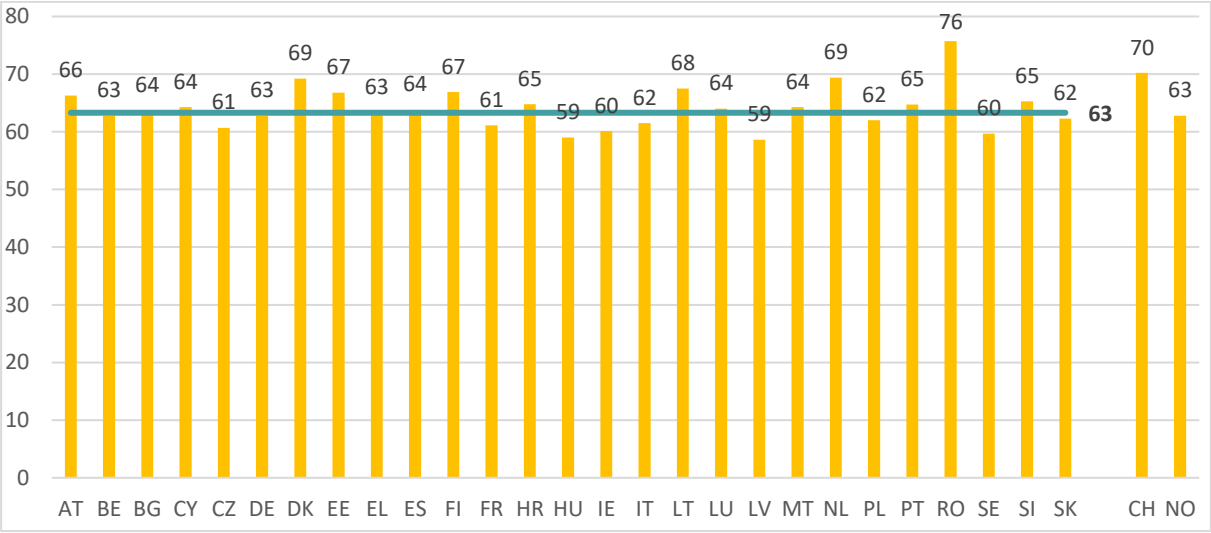
Figure 19: Workers' mean scores on the WHO-5 Well-Being Index*, by sector, EU-27, 2021, (%)



Source: TNO based on the EWCTS-2021
Base: All workers in the EU-27.
(*) 0=worst imaginable well-being – 100=most imaginable well-being; 5-item scale.

The well-being of employees differs slightly among the different European countries. Romanian employees in the HeSCare sector score highest on the well-being index (76%), while Hungarian and Lithuanian employees score lowest (59%) (Figure 20).

Figure 20: HeSCare workers' mean scores on the WHO-5 Well-Being Index*, by country, EU-27 (+ CH and NO), 2021 (%)



Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27, Switzerland and Norway.
(*) 0=worst imaginable well-being – 100=most imaginable well-being; 5-item scale.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

2.3.5 The share and role of women in the HeSCare sector

- **Share of women employment in the sector and associated OSH risks**

Women make up about 80% of its employees in the HeSCare sector, based on data from 2018 (EU-OSHA, 2022a) and this has changed little over the past decade (Eurofound 2020a). More than 80% of employees engaged in residential care and social work activities are women, with a slightly lower percentage for employees within the healthcare subsector (76%) as can be seen in Table 7. Worldwide, in 2022 the WHO estimated that female HeSCare employees provided essential health services to around 5 billion people.[23] Although their economic value is estimated to be around US$3 trillion every year, their contributions often remain poorly recognised and rewarded.

Table 7: Share of women in employment, HeSCare sector and subsectors versus all the sectors in the EU-27 economy, 2022 (%)

	Healthcare	Residential care	Social work	Total HeSCare sector	Total – all NACE activities
Share of women	76	82	82	79	46

Source: Panteia based on Eurostat, EU Labour Force Survey, 2022

In particular, the long-term care sector (residential and non-residential) exhibits a distinct gender bias among its workers with women constituting 81% of the workforce compared to the overall employment rate in Europe of 46% (Eurofound, 2020a). Some caregiving professions are still commonly associated with women, including nursing, midwifery, personal care and domestic assistance (Eurofound, 2020a). In general, **women are overrepresented in all categories of home-based care workers** (ILO, 2018a), especially migrants or those with a low or medium level of education (EIGE, 2021a). This also applies for domestic workers, who are responsible for providing homecare services in private residences, they are considered part of the caregiving workforce. Their responsibilities may include tasks such as house cleaning, cooking, laundry, child and elderly care, home security, etc. In the EU, most domestic workers (95%) are women (Eurofound, 2020b). Work in the home-based long-term care is characterised by atypical working hours and popularity of part-time employment, which is also reflected in the average income (EIGE, 2021a). Due to the isolated environment, home-based care workers face a much higher risk of abuse than those working in residential care (EIGE, 2021a).

Women also constitute the majority of employees in the social work activities sector. In 2018, of the 5.5 million workers in the EU social work activities sector, 4.5 million were women, constituting approximately 82% of the workforce (EU-OSHA, 2022a). Moreover, most informal caregivers are also women (Eurofound, 2020b). Historically, women have the burden of caregiving responsibilities due to gender-based social roles, stereotypes and power dynamics (EIGE, 2023). The persistent and unequal distribution continues to affect women's lives and to negatively affect their participation in the HeSCare workforce and financial well-being. Women workers are particularly at risk due to their dual roles as employees and unpaid caregivers for children or other family members (EU-OSHA, 2020a). These dual roles can lead to a heavier physical and psychological burden, increasing their susceptibility to physical and mental health issues (EU-OSHA, 2020a). Women assume the primary role in childcare and they are twice as likely to spend a minimum of 5 hours daily on childcare in comparison to men (EIGE, 2023). This unequal distribution creates barriers for women to achieve equal footing in the workforce. Access to formal caregiving services can assist caregivers in effectively managing their paid work and caregiving responsibilities (EIGE, 2023). The pandemic has had a significant and concerning effect on mothers with children under the age of 12, single mothers and women involved in informal caregiving (Eurofound, 2022b). According to a survey conducted by EIGE, the primary network of informal caregivers in the EU, mainly composed of women, has indicated a 17% rise in the weekly caregiving responsibilities (EIGE,

[23] More information available at: https://www.who.int/activities/value-gender-and-equity-in-the-global-health-workforce

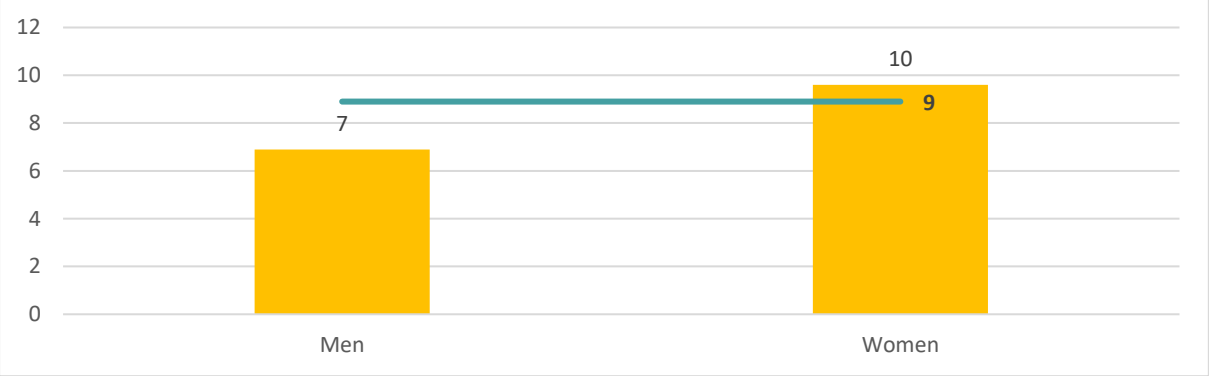
2021b). Caregiving is expected to become even more demanding in the future, with an increased number of individuals taking on informal caregiving roles.

Inevitably, **the gender imbalance in the sector means that women are more exposed to many risks in the workplace such as psychosocial and organisational risk factors, including, but not limited to, harassment, discrimination, bullying, verbal abuse, job insecurity, lower compensation, and limited career advancement opportunities**. Women in the sector are also 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 musculoskeletal disorders (MSDs) (EU-OSHA, 2020a).

This gender distribution has some implications for OSH – since this sector primarily faces musculoskeletal and psychosocial risks, it is essential to recognise that female workers often experience poorer physical and mental health (EU-OSHA, 2022a). **Women report a higher occurrence of MSDs than their male counterparts**. Additionally, female workers indicate lower self-perceived physical and mental well-being, greater limitations in daily activities due to health issues, and higher rates of absenteeism due to health-related reasons (EU-OSHA, 2020c). Further, it is worth mentioning that there is a prevalent male-dominated perspective in the realm of occupational diseases and OSH concerns. This perspective can be detrimental to women, as OSH tools, personal protective equipment and workstations are often designed with the physical characteristics of men in mind, overlooking the unique attributes of women's bodies (EU-OSHA, 2020c).

Women in the HeSCare sector often work in low paid, low status and even unpaid roles. Compared to men, they often have less favourable working conditions (EIGE, 2021a) and are more likely to have precariousness employment conditions, as shown in Figure 21.

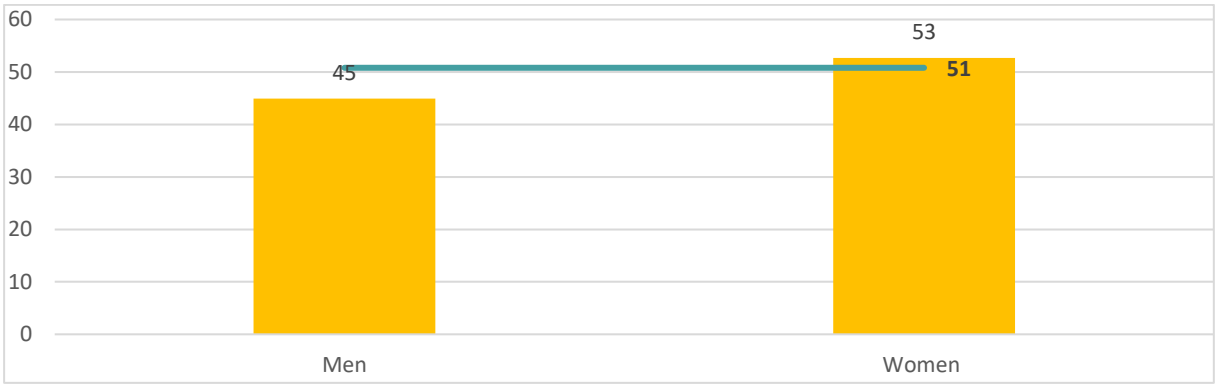
Figure 21: Percentage of workers with precarious employment conditions (*) in the HeSCare sector, by gender, EU-27, 2021 (%)



Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27.
(*) Precariousness defined as: parttime or fixed-term job, and difficulty making ends meet or multiple jobs.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

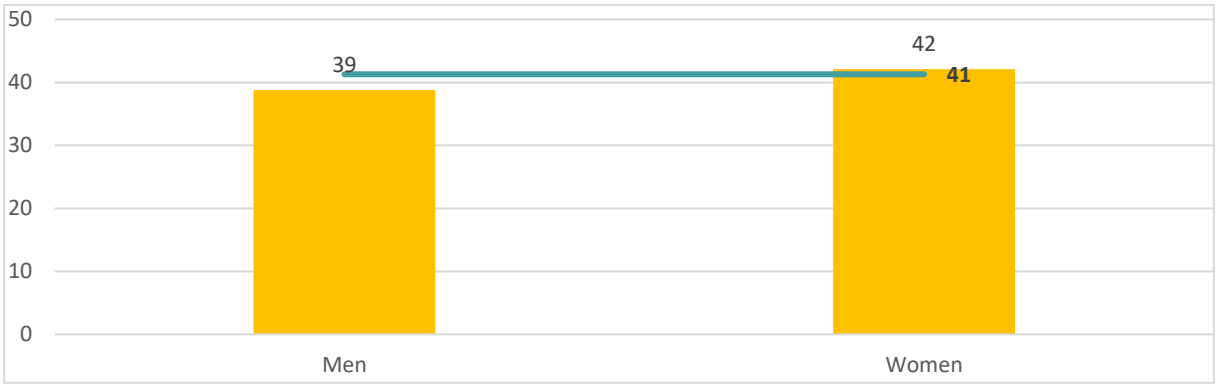
The nature of the work for men and women differs. For example, according to the EWCTS 2021, women are more likely to work as front-line workers (77%) than men (72%). **Additionally, women workers face more emotionally disturbing situations than men** (71% and 66%, respectively). The experience of reward also differs between male and female employees. Figure 22 shows that female employees in the HeSCare sector are more likely to experience a low payment for their achievements (53%) than men (45%), and Figure 23 shows that women tend to report higher work intensity (42%) than men (39%).

Figure 22: Percentage of HeSCare sector workers experiencing low payments for achievements; effort-reward imbalance, by gender, EU-27, 2021 (%)



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

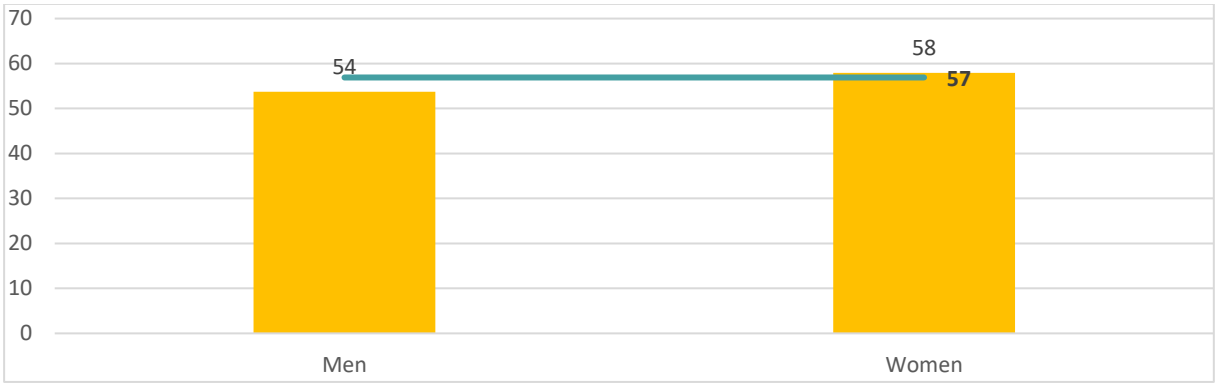
Figure 23: Mean scores of HeSCare workers on high work intensity*, by gender, EU-27, 2021 (%)



Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27.
(*) Working often/always 'at very high speed'; 'to tight deadlines'. Dichotomised 2-item scale.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

Besides the nature of the work, also the extent of influence within the job differs between the sexes. Women are more likely than men to experience a low task autonomy (58% against 54%) (Figure 24).

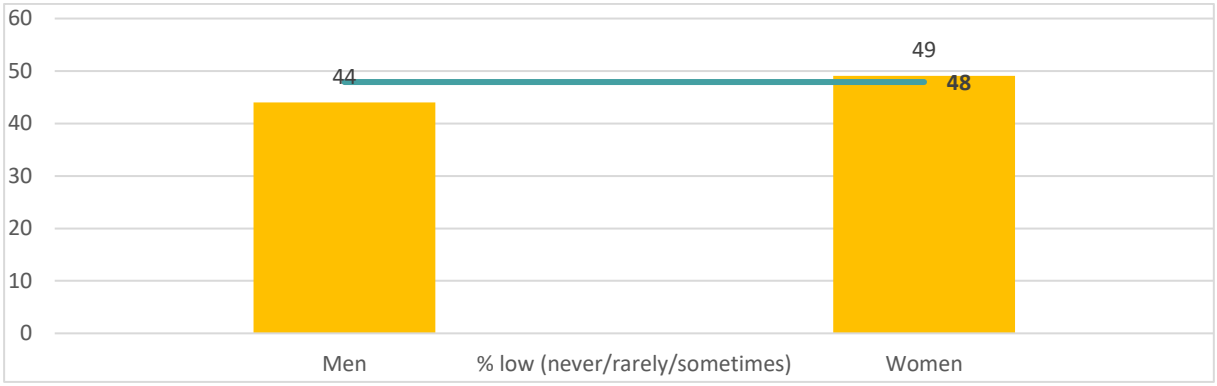
Figure 24: Mean scores of HeSCare sector workers on low task autonomy*, by gender, EU-27, 2021 (%)



Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27.
(*) Deciding never/rarely/sometimes yourself on 'order of tasks'; 'methods'; 'speed or rate of work'. Dichotomised 3-item scale.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

Figure 25 shows that apart from experiencing a lower extent of influence in their own work, **women also experience a lower extent of influence in the wider organisation** compared to men (49% against 44%).

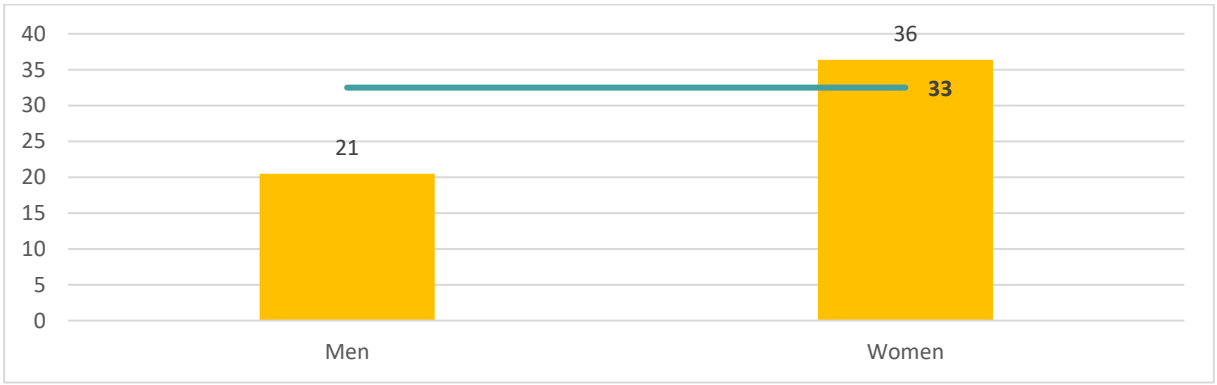
Figure 25: Mean scores of HeSCare sector workers on organisational participation*, by gender, EU-27 (%), 2021



Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27.
(*) Never/rarely/sometimes 'can influence decisions'; 'consulted about objectives'; 'involved in improving work organisation/processes'. Dichotomised 3-item scale.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

As discussed before, part-time work is very common in the HeSCare sector. Notably, this differs between the sexes. Figure 26 shows that **women are more likely to work part-time** (36%) than men (21%).

Figure 26: Percentage of part-time workers in the HeSCare sector (less than 35 hours per week), by gender, EU-27, 2021



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

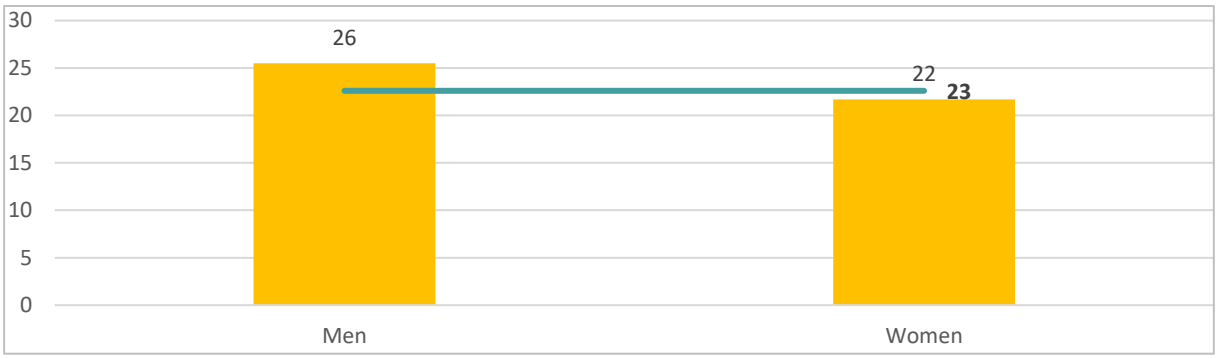
- **Work-life balance implications**

The responsibilities of caregiving have a substantial impact on achieving a balance between work and personal life, resulting in reduced working hours, limited career advancement and financial repercussions (EIGE, 2023). This is particularly challenging for mothers with young children (EIGE, 2023). Caregiving responsibilities often demand substantial time and physical exertion, which can present challenges for caregivers in terms of maintaining employment or advancing their careers. This is why mothers tend to adjust their work lives to accommodate responsibilities, often at the cost of their careers (EIGE, 2023). According to a 2022 survey conducted by EIGE (2023), 34% of women with children under the age of 12 encountered difficulties when it comes to work-life balance. These conflicts often result in employment-related drawbacks, including reduced working hours, absenteeism and slower career advancement. Many women have to adjust their working hours to accommodate childcare responsibilities (EIGE, 2023).

These patterns have enduring repercussions for the caregivers' financial stability and overall well-being, leading to lower earnings and decreased social security contributions (EIGE, 2023). They directly impact mostly women's economic independence, which contributes to the gender pay gap. Furthermore, these work-life balance conflicts can hinder career progression, as women who are working fewer hours may have limited opportunities for promotions, skill development and professional growth (EIGE, 2023).

Interestingly, more men (26%) than women (22%) indicate an imbalance in their work life-balance while working in the HeSCare sector (Figure 27). One possible explanation for this could be that female employees are more likely to work part-time and are therefore better able to fit their working hours in with their other commitments.

Figure 27: Percentage of HeSCare workers reporting a 'not very well/not at all well' work-life balance, by gender, EU-27, 2021 (%)



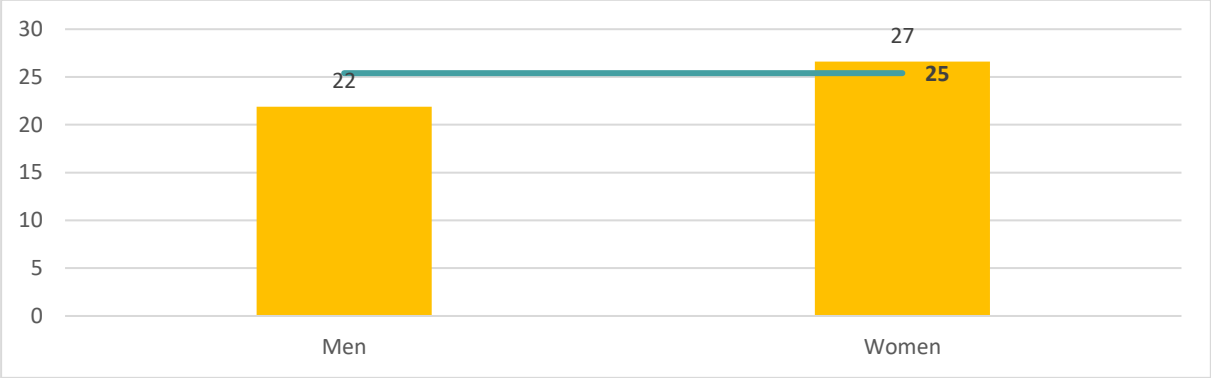
Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

To address the issues of the work-life balance, the 'Work-life Balance Directive' has become part of the European Law and will be implemented and adopted by the Member States. The importance of the work-life balance directive should be noted, which does not relate specifically to HeSCare workers only, but to all workers. This provision aims to promote a more equal distribution of caregiving responsibilities by introducing non-transferable parental leave and flexible work arrangements, with a specific focus on encouraging men's involvement in caregiver responsibilities. The directive further underscores that individuals utilising these rights should not be subjected to unfavourable treatment or discrimination in the workplace.

- **Gender pay gap**

The gender pay gap is higher in the HeSCare sector than in other sectors; women earn on average 24% less than men worldwide (ILO, 2022). In general, wages in the HeSCare sector are lower than in other sectors, which is often the case for sectors where the majority of employees are female (ILO, 2022). Indeed, as Figure 28 shows, based on EWCTS 2021 data, **women working in the HeSCare sector are more likely to have trouble to make ends meet financially** than men (27% against 22%).

Figure 28: Percentage of HeSCare sector workers experiencing some/great difficulty to make ends meet financially, by gender, 2021 (%)



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

Similarly, EWCTS-2021 shows that **working part-time or in a fixed-term job and having difficulties to making ends meet or having multiple jobs is more common among women than men** (10% and 7%, respectively). These numbers indicate that female employees in the HeSCare sector have a lower financial position than their male counterparts. Income disparities between women and men in the HeSCare sector are influenced by different factors – family composition, age, educational attainment, migration status, etc. (EIGE, 2021b). The reason for gender pay gaps in the sector remains unexplained, even after considering all factors, however, it suggests the presence of discrimination and bias against women (WHO, 2019). Gender-biased income disparities have long-term economic consequences and contribute to a wealth gap and poverty among many elderly women (WHO, 2019). Over a person's lifetime, income inequalities tend to increase, resulting in the greatest gender gap among older individuals (EIGE, 2021b). Since pensions are a crucial source of income for older workers, gender disparities in this sector increase the risk of poverty among elderly women, especially for single women who lack a partner's income (EIGE, 2021b).

- **The impact of COVID-19 on women in the HeSCare sector**

The COVID-19 crisis has had gender-specific effects on the HeSCare sector, in which women are disproportionately represented among the essential workers in the field (EIGE, 2021b). Their roles exposed them to a higher risk of the virus and subjected them to elevated levels of work-related stress and emotional exhaustion. **Women were prominently positioned on the front lines of the COVID-19 pandemic. This led to extended working hours, shifting schedules, and heightened exposure to infection, hence, creating significant distress and a high risk of burnout** (EIGE, 2021b). For 2021, in countries like Germany, Italy, Spain and the United States, around 70% of the confirmed virus infections, specifically among HeSCare workers, have affected women (EIGE, 2021b). Specifically, HeSCare women workers amounted to 72% of the global cases for the same year. HeSCare female employees are not only more likely to become infected by the virus, but they are also more likely to be affected with long COVID, the symptoms of which usually last for more than four weeks after the infection (Peters Cl., et al. 2022).

The significant distress experienced by women healthcare workers since the pandemic started has been exacerbated by attrition in the medical field, especially in female-dominated roles like nursing (EIGE, 2021b) Due to their substantial exposure to infected patients, fewer support systems, and different coping strategies, women are at a higher risk than men of developing post-traumatic stress disorder ('PTSD') as a result of the pandemic (EIGE, 2021b).

The crisis of COVID-19 depended on pre-existing inequalities and how recovery response policies alleviated the pandemic's effects (EIGE, 2021b). In mid-2020, all Member States introduced income support measures for those impacted by COVID-19. Nevertheless, women in the HeSCare sector have faced greater challenges than men in accessing income support. Specifically, they sometimes would not meet eligibility criteria due to shorter or interrupted careers, which are essential for accessing unemployment or parental leave benefits. This type of income support that women receive, compared

to men, reflects their different positions in the job market and their disproportionate caregiving responsibilities (EIGE, 2021b).

2.3.6 Age profile of the sector

Work in the HeSCare sector is influenced by several factors, which include for example demographic changes (EU-OSHA, 2022a). **One important demographic change is an ageing society in the EU, which is expected to result in labour shortages in the area connected to the HeSCare sector** (EU-OSHA, 2022a). Two underlying mechanisms for this can be identified.

Firstly, **an ageing society increases the number of patients who need care**. The number of people who need care is not only increasing due to ageing but also due to changing life patterns resulting in the spread of diseases, such as diabetes, obesity and coronary heart diseases (EU-OSHA, 2023a). 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. 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. Consequently, the aging demographics will exert heightened pressure to deliver a greater quantity and qualitatively distinct range of care and social services in the future compared to the present situation (European Commission, 2014).

Secondly, **declining birth-rates combined with an ageing population, create a relatively older workforce**. These trends will result in a larger imbalance between demand for the longer-term carers and labour supply, also considering the different skillset required from residential care workers (EU-OSHA, 2022a). Europe faces competition for qualified workers across different sectors and industries.

- **Age structure**

One way to understand the future supply of HeSCare workers is to look at the age distribution of the current workforce. A high percentage of workers 50 years or older in the HeSCare sector is potentially leading to a shortage of workers in the near future, especially for professions that require long-term training and education. In contrast, if there are relatively very few older workers, it might be an indication for a high turnover rate in the workforce. Potential reasons for this could be poor working conditions (leading to health problems and possible early retirement), low pay, or a lack of work-life balance (ILO, 2023a).

As shown in Table 8, in 2022 37% of the employees in the HeSCare sector were aged 50 years or above. This is 3% more than in the overall workforce. Furthermore, in residential care, the proportion of workers aged 65 years or older (therefore beyond the retirement age in many EU Member States) in the EU is relatively high and has nearly doubled in the past decade. For example, in Flanders (Belgium), it is estimated that 52,000 HeSCare workers will retire by 2026. In France, a recent report indicates the need to fill 350,000 positions by the end of 2025 (Eurofound, 2020a). When compared to other sectors, the proportions of workers aged 50+ in health and long-term care have increased faster than the proportion of workers aged 50+ among all workers (Eurofound, 2022e).

Table 8: Age structure in employment, HeSCare sector and subsectors versus all the sectors in the EU-27 economy, 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: Eurostat, Labor Force Survey, 2022

Member States' data indicated that in 2013, the nursing workforce had an average age of between 41 and 45 years old, and there was a shortage of younger recruits entering the profession to replace those departing (EU-OSHA, 2014). This pattern did not change as indicated by Table 8, with 7% of the employees between the age of 15 and 24 and 56% aged between 25 and 49 in 2022 and 37% above 50 years and older (see Table 8).

There is a high variance in age distribution in the HeSCare sector between the EU-27 countries, as becomes clear from Table 9. In 2021 in Lithuania, 51% of the workforce was aged above 50, while in Cyprus only 24% was aged above 50. Looking at the younger employees, Germany and the Netherlands reported the highest share of younger employees with 11% and 10% of the employees aged between 15 and 24 years old, respectively. This contrasts with Romania, which faced the lowest share of young employees, with only 2% of the workforce aged 15-24. The increasing age of the sector's workforce is a noteworthy issue in all Member States. However, it is particularly critical in countries where a substantial portion of the workforce is aged 55 years and older. In such cases, there is a significant challenge in finding replacements for these workers when they retire (WHO, 2022).

Table 9: Age distribution in the HeSCare sector workforce, by country, EU-27, 2021 (%)

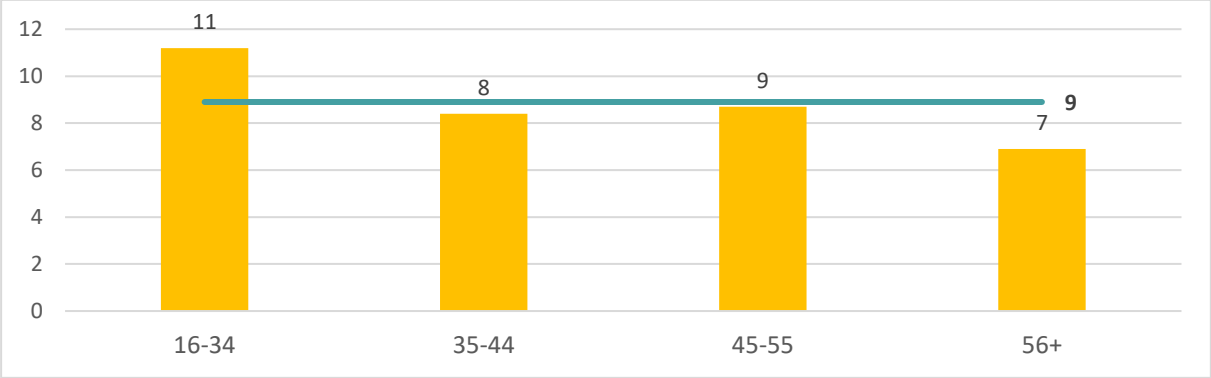
Member State	% employment 15 – 24 years old	% employment 25 – 49 years old	% employment 50 years or older
Austria	7	60	33
Belgium	6	59	35
Bulgaria	*	*	*
Croatia	8	57	36
Cyprus	5	71	24
Czechia	4	57	39
Denmark	5	60	35
Estonia	8	52	40
Finland	4	60	36
France	7	62	31
Germany	11	52	37

Member State	% employment 15 – 24 years old	% employment 25 – 49 years old	% employment 50 years or older
Greece	3	61	36
Hungary	4	57	39
Ireland	5	63	32
Italy	3	54	43
Latvia	8	48	44
Lithuania	5	44	51
Luxembourg	5	67	28
Malta	7	64	29
Netherlands	10	57	33
Poland	3	55	43
Portugal	4	63	33
Romania	2	69	29
Slovakia	*	*	*
Slovenia	5	66	29
Spain	5	59	37
Sweden	5	60	36

Source: Eurostat, Labor Force Survey, 2021
* Not available.

The age distribution of the HeSCare sector is an important indicator in determining working conditions, as employees of different age categories might experience their working environment differently. For example, the share of workers with precarious employment conditions differs across the different age categories in the HeSCare sector. The youngest group 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, as can be seen in Figure 29.

Figure 29: Percentage of HeSCare sector workers with precarious employment conditions*, by age, EU-27, 2021 (%)

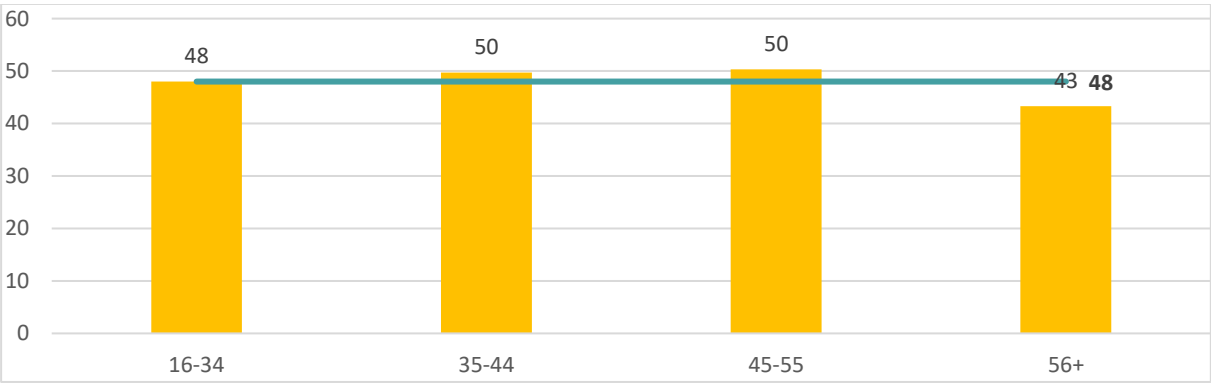


Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27.
(*) Precariousness defined as: parttime or fixed-term job, and difficulty making ends meet or multiple jobs.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

- **Work related health and safety risks in the different age groups**

Overall, according to data from EWCTS 2021 shown in Figure 30, 48% of HeSCare employees' experience that their health and safety is at risk because of their work. This differs slightly between the different age categories. The 56+ age group has the lowest share of employees reporting risks (43%), whereas the share reporting risks in other age groups is roughly the same.

Figure 30: Percentage of HeSCare sector workers reporting that their health or safety is at risk because of work, by age, EU-27, 2021 (%)



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

Younger and older employees face different risks in their employment in the HeSCare sector. Individuals aged under 25 tend to experience better health and overall well-being compared to their older counterparts in the workforce. Younger employees consistently score higher than average on social support networks and job-related rewards (Eurofound, 2019). Nonetheless, they are faced with more exposure to physical hazards and heightened work-related stress due to increased work intensity when compared to older employees. Notably, younger employees are more likely to be exposed to extended working hours and social and emotional demands (Eurofound, 2019). Some physical hazards in the work environment are a risk for young employees due to less training, experience, and job maturity, which makes them more susceptible to overestimating their physical abilities or understanding the safety and work-related health risks associated with their tasks. Accordingly, younger workers report a higher rate of non-fatal injuries compared to older ones (EU-OSHA, 2023b). As exposure to workplace risks during youth can potentially lead to health issues later in life, it is imperative that current worker health and safety monitoring address this aspect to ensure retaining a healthy workforce (EU-OSHA, 2023b). Younger employees also face a lower autonomy and a higher job insecurity. Specifically,

younger workers have relatively restricted opportunities to exert control over their work conditions (Eurofound, 2019). This work is often more insecure, as younger employees are more likely to have non-standard employment arrangements, such as part-time or temporary contracts (EU-OSHA, 2023b).

Although older workers have a lower risk of non-fatal accidents due to long work experience, **fatal accidents are more frequent among older workers than among their younger peers** (EU-OSHA, 2023b). In addition, they face a greater susceptibility to occupational health due to prolonged exposure to certain hazards and report more work-related health problems, particularly backache and muscular pain, affecting over 70% of workers aged 55 and above (EU-OSHA, 2023b). This is an OSH risk, particularly because older employees need longer recovery periods from illnesses and injuries (EU-OSHA, 2022a). While these age-related changes are not uniform due to individual differences, an ageing workforce necessitates workplace adaptations (Eurofound, 2020b).

Effective workplace design offers advantages to employees of all age brackets, including older workers. As individuals' capabilities evolve and life situations change, working conditions must be adapted to accommodate these changes. This adaptation may involve various measures such as (EU-OSHA, 2023a):

- Modifying or rotating job tasks.
- More frequent breaks.
- Enhancing the organisation of shift work, such as implementing fast forward-rotating shifts that span 2-3 days.
- Ensuring proper lightning and noise control.
- Implementing ergonomic equipment design to enhance work conditions.
- Work-life balance for workers in different life situations (i.e., childcare for families, adjustments to promote health and decrease functioning among older workers).

The combination of a high number of employees above the age of 50 in the HeSCare sector, a low number of younger employees and an increase in the demand of healthcare, increases the need to recruit diverse, qualified and healthy HeSCare workers. One of the means to address staff shortages is raising (or extending, so employees can choose) the official retirement age while simultaneously taking into consideration the exposure to work hazards and health considerations for older and experienced workers. A longer career means prolonging the exposure of HeSCare workers to workplace hazards (EU-OSHA, 2023c). Particularly, it is expected that a growing number of employees 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, 2023c).

2.3.7 Migrant workers

The EU healthcare system is an example of a healthcare system where migrant professionals[24] play an important role. **Across EU Member States, the number of migrant healthcare professionals has grown by more than 5% annually over the last 30 years** (EU-OSHA, 2022a). In 2021, the HeSCare sector was among the sectors experiencing both a persistent labour shortage and the largest share of migrants (European Commission, 2023a). Most migrant care workers are female, who often leave their family behind. Reasons for healthcare professionals to leave their home country include dissatisfaction with the working conditions and more opportunities for personal development in another country (ILO, 2018b). The highest share of migrant workers (12.4%) was found in residential care, whereas the healthcare subsector had a lower migrant share of 7% (European Commission, 2023a).

Especially in the long-term care sector (residential and non-residential), workforce migrants and mobile workers [25] play a crucial role, particularly in certain countries (Eurofound, 2020a). Cross-border employment is prevalent, especially in cases where there are significant disparities in working conditions

[24] Defined by the European Commission as 'A person who is to be engaged, is engaged or has been engaged in a remunerated activity in a state of which they are not nationals'. See https://home-affairs.ec.europa.eu/networks/european-migration-network-emn/emn-asylum-and-migration-glossary/glossary/migrant-worker_en

[25] Defined by the European Commission as an EU citizen who works in a Member State other than the country of origin, independent of the duration of that work and the country of residence; or a cross-border worker. See https://ec.europa.eu/social/BlobServlet?docId=27033&langId=en

and salaries between adjacent regions (EU-OSHA, 2014). Migrant workers face an easy entry point where formal or recognised qualifications may not be mandatory. For example, in the healthcare subsector the lack of recognition of diplomas and certificates as well as the requirement of certain trainings prevents foreign employees from working in the sector (Eurofound, 2020a). That is why migrant workers are mostly concentrated in the long-term care (residential and non-residential) subsector (7.9%), as opposed to the healthcare one (4.8%) (Eurofound, 2020a). Most migrants in the long-term care sector (residential and non-residential) come from outside the EU (4.5%) rather than from within (3.4%) (Eurofound, 2020a).

Migrant workers are also involved in providing care for the elderly often serving as replacements for working women (European Commission, 2022b). They often live in the household and are available 24 hours per day (European Commission, 2022b). A significant issue with informal caregivers or unreported workers is that the majority lack the necessary training for caregiving (European Commission, 2022b). It is estimated that there are approximately 200,000 migrant care workers who provide care for elderly individuals without having a formal employment agreement (European Commission, 2022b).

Migrant workers often face a barrier to practice their HeSCare profession, particularly those from outside of the EU. The verification of their qualifications, which includes their educational background and work experience, is typically carried out by the Ministry of Health or designated institutions (ILO, 2023b). This process can be quite time-consuming, as the authorities may require additional training and the translation of essential documents into the language of the host country (ILO, 2023b). The next phase in the licensing procedure involves being added to a professional registry. Depending on the specific rules and regulations of the country, this registration could necessitate passing an accreditation examination. Both domestic graduates and migrant healthcare workers, who have already had their qualifications recognised, may be required to take this examination. Additionally, before registration, migrant workers are typically required to demonstrate their proficiency in the language of the host country and their knowledge of the administrative and legal regulations pertaining to their specific healthcare profession (ILO, 2023b).

Language skills are important to ensure patient and worker safety in multicultural and multilingual work environments as communication is essential to prevent misunderstanding of safety procedures (EU-OSHA, 2022a, EU-OSHA, 2014). The lack of knowledge of the work environment and relevant regulations can for example result in exploitation of migrant workers (EU-OSHA, 2022a). The circumstances of these workers, including their culture-specific perceptions and attitudes towards work and occupational risks, need to be considered in safety, health and related research.

3. Main working conditions and work-related health risks in the HeSCare sector

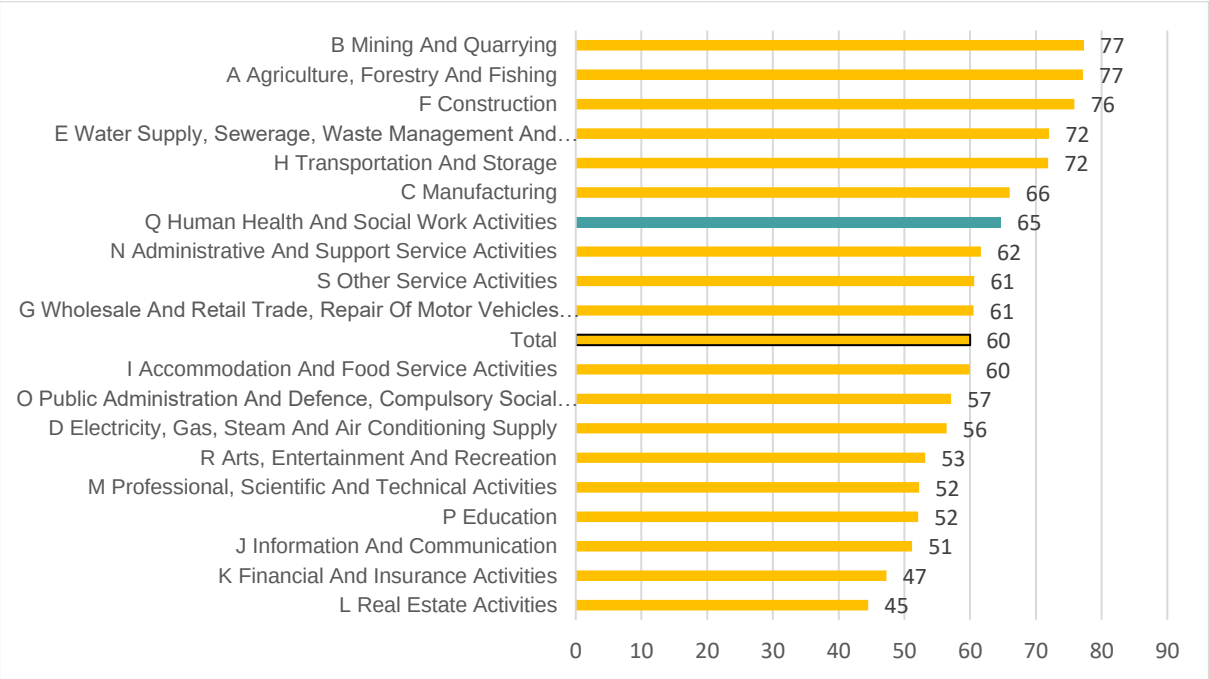
This chapter presents an overview of the main working conditions and work-related health risks in the HeSCare sector. Firstly, a description is given of the main OSH risks, which includes relevant EU level data and information regarding the various types of risks faced by HeSCare workers (notably, musculoskeletal (MSK), psychosocial, organisational, physical, chemical and biological risks), as well as exploring the co-exposure between MSK and psychosocial risks. Secondly, information is provided regarding the main health outcomes in the HeSCare sector, such as occupational diseases and work-related illnesses, as well as accidents in the HeSCare sector.

3.1 Main OSH risks in the HeSCare sector

As described in the previous chapter, **HeSCare sector workers are exposed to a wide range of health and safety related risks during their work.** These risks include biological agents such as blood-transmitted pathogens and infectious biological agents (e.g., COVID-19); chemical risks, including exposure to hazardous medicinal products (e.g., treatment of cancer) and disinfectants; physical risks, such as slips, trips and falls, exposure to noise and ionising radiation; MSK risks for example lifting or static postures during patient handling; as well as psychosocial risks ((EU OSHA 2023b). From this list, both MSK as well as psychosocial risks are seen as the main risks, according to a recent study carried out by EU-OSHA, based on the findings of three waves of the ESENER survey (EU-OSHA, 2022a).

Compared to workers in other (economic) sectors, **HeSCare workers have a higher exposure to risk factors in general**: Figure 31 shows that 65% of HeSCare workers are exposed to risk factors that could affect their physical health, whereas in total, 60% of workers (in all sectors) are exposed to such risks factors.

Figure 31: People reporting exposure to risk factors that could affect their physical health, by sector, EU-27, 2020 (%)



Source: EU Labour Force Survey, 2020
Base : % of total employed, age group 15-64.

In this chapter, a further in-depth analysis is given of five types of OSH risks prevalent in the HeSCare sector and their evolution over time:

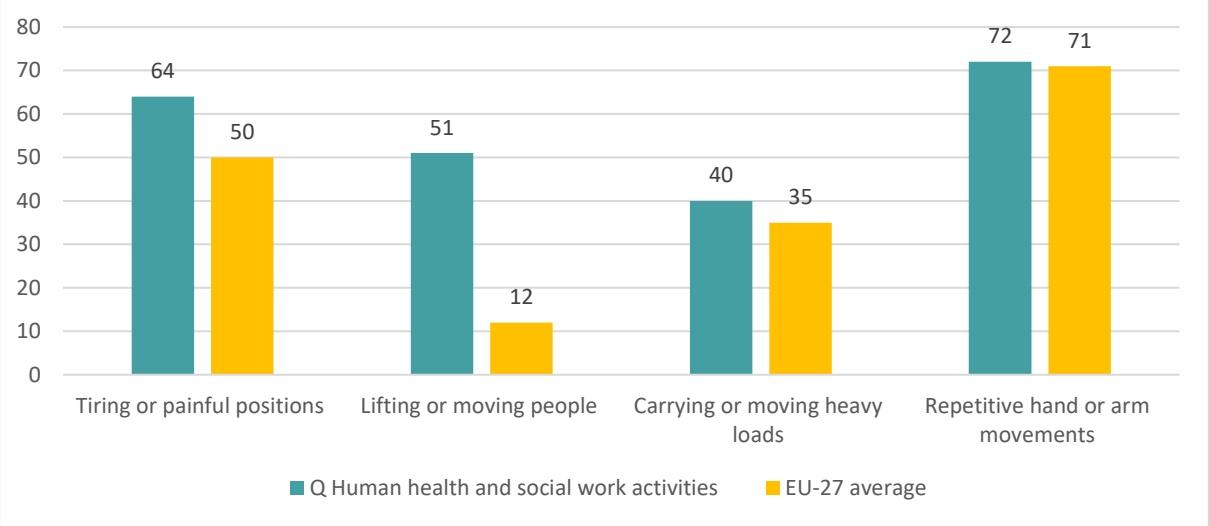
1. MSK risks.
2. Psychosocial risks (PSRs).
3. Co-exposure for MSK and psychosocial risk factors.
4. Physical, chemical, and biological risks.
5. Organisational risk factors.
6. Evolution of risks over time.

3.1.1 Musculoskeletal risks

MSK risk factors are the most reported risks in the HeSCare sector as well as for all sectors (EU-OSHA, 2022a). MSK risks can lead to musculoskeletal disorders (MSDs), which are painful injuries of the muscles, tendons, joints and nerves (EU-OSHA, 2020c). MSK risks in the HeSCare sector include lifting patients, pushing heavy equipment and other objects, working in awkward positions, performing repetitive movements and work involving prolonged standing and sitting. This can be exacerbated by a lack of training and the growth in care work in individuals' homes, where specialist equipment may not be available and where the space is not adequately designed for care activities. In addition, high workloads in the context of staff shortages may exacerbate risks (EU-OSHA, 2022a). Such problems can have an effect on sickness absence, injuries and disabilities, increased costs, higher employee turnover, lower production and staff leaving the healthcare profession (EU-OSHA, 2015). The risk factors can be found in the task itself, the fact that the "load" is a patient and therefore requires special handling techniques as well as the work environment. This reality is a bit different for home care workers since patients' homes are a less controlled work environment than hospitals or other healthcare facilities.

Looking at the trends between 2014 and 2019, **in HeSCare, 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) (see Figure 34). The number of establishments reporting lifting or moving people or heavy loads also increased from 54% in 2014 to 57% in 2019 in the sector (EU-OSHA, 2022a). EWCTS-2021 data show that compared to other sectors in the EU-27, workers in the HeSCare sector are more often exposed to all types of MSK risks, as can be seen in Figure 32.

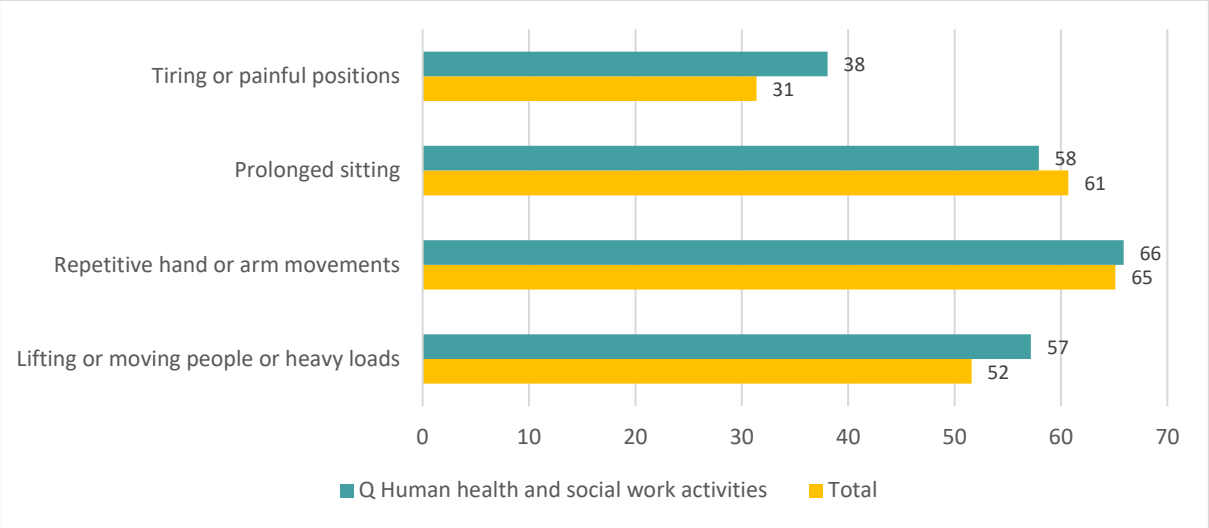
Figure 32: Percentage of workers working sometimes/often/always exposed to musculoskeletal risks, by sector, EU-27, 2021 (%)



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

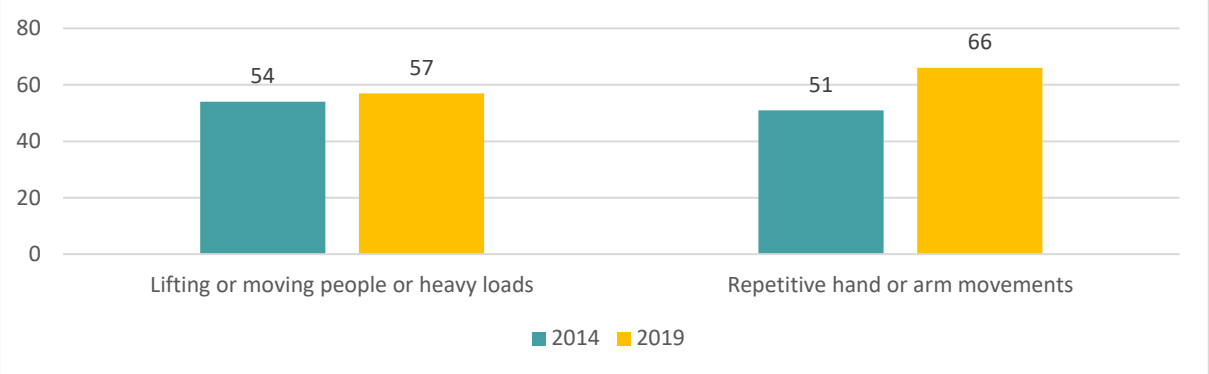
Data from the ESENER-19 Survey present similar results. The data in Figure 33 show that MSK risks (in this case tiring or painful positions, repetitive hand or arm movements as well as lifting or moving people or heavy loads) are more often reported in establishments in the HeSCare sector, compared to all sectors.

Figure 33: Types of musculoskeletal risks indicated by establishments, by sector, EU-27, 2019 (%)



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

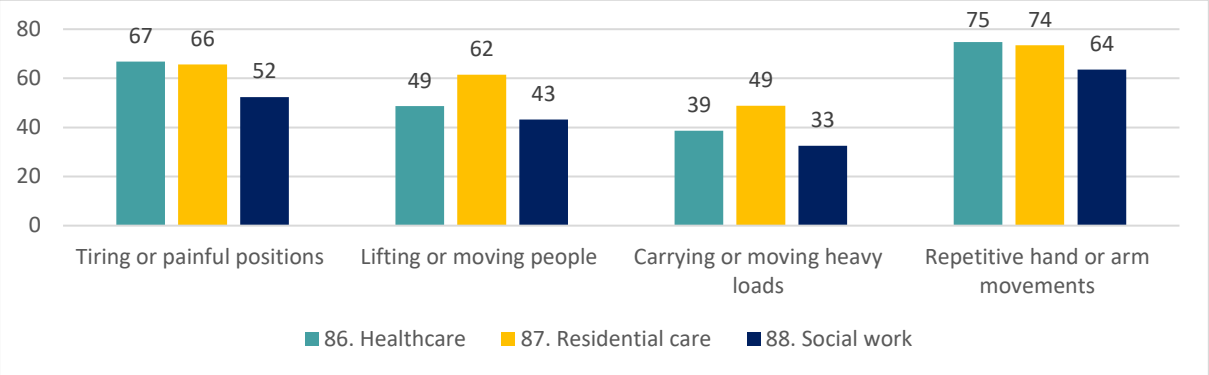
Figure 34: Types of musculoskeletal risks indicated by HeSCare sector establishments, EU-27, 2014 and 2019 (%)



Source: Panteia based on ESENER-2014 and ESENER-2019
Base: All HeSCare sector establishments in the EU-27.

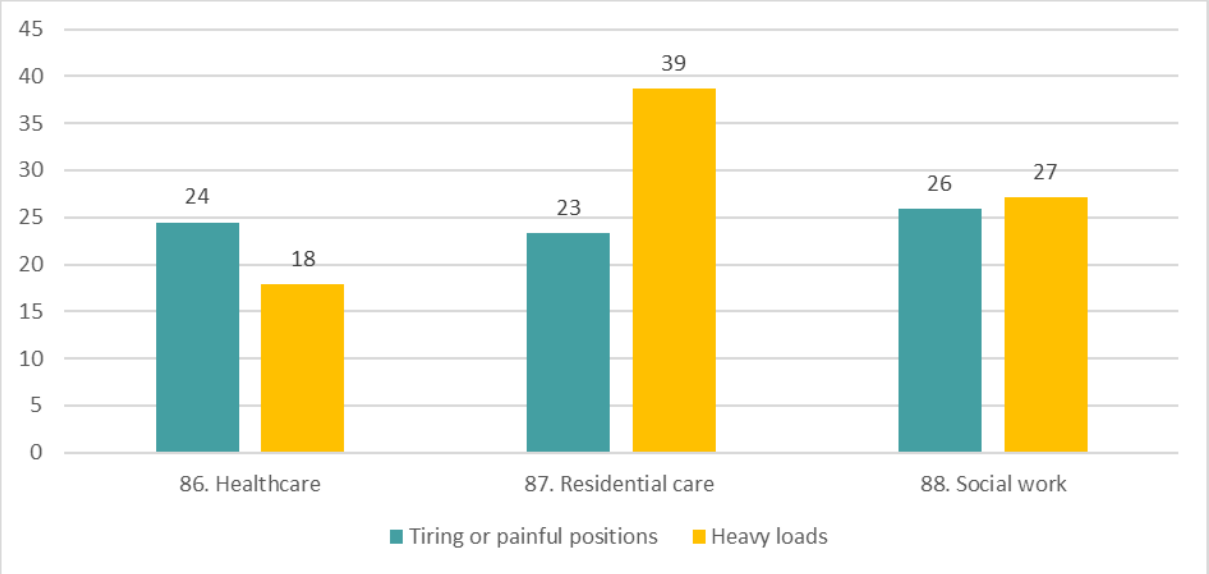
Within the subsectors of the HeSCare sector, there are differences in the type of exposure to MSK risk factors. **Healthcare workers and residential care workers are more often exposed to tiring or painful positions, lifting or moving people, carrying, or moving heavy loads and repetitive hand or arm movements** than workers in the social work subsector (Figure 35). It is striking that in the residential care subsector, the exposure to lifting and/or moving people as well as carrying and moving heavy loads is higher compared to the two other sub-sectors. This is similar to data from the 2020 LFS survey, which can be seen in Figure 36. 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, 2020a).

Figure 35: Percentage of HeSCare sector workers working sometimes/often/always exposed to musculoskeletal risks, by subsector, EU-27, 2021 (%)



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

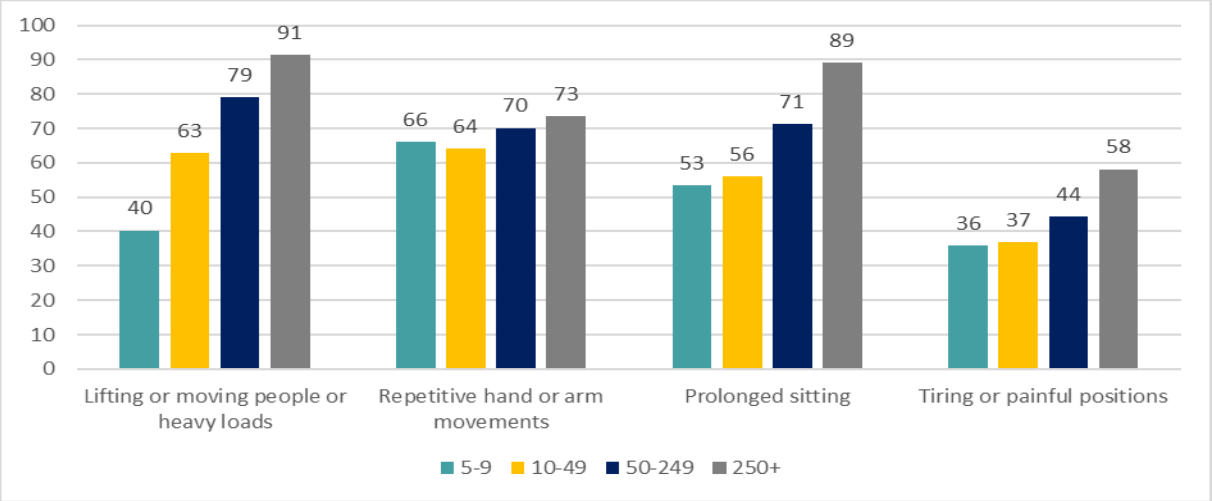
Figure 36: Highest rate exposures within the HeSCare subsectors that could affect their physical health, EU-27, 2020 (%)



Source: EU Labour Force Survey, 2020

When analysing the size of enterprises, MSK risks are positively associated with increased size of the organisation. This overlaps with findings from the ESENER-19 survey where large organisations are more likely to report OSH risk factors compared to smaller organisations, especially micro establishments (Figure 37). In general, **the reported presence of safety, MSK and chemical risk factors continues to increase with establishment size** (EU-OSHA, 2022b).

Figure 37: Types of musculoskeletal risks indicated by HeSCare sector establishments, by size, EU-27, 2019 (%)



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

Box 2: Further analysis of the prevalence of EWCTS variables relating to MSDs

Further analysis of EWCTS data variables was carried out regarding the prevalence of MSDs (see Methodological appendix 1). The findings of this analysis show that:

- Gender (being a woman) and age group (45 to 55 years compared to 16-34 years) were associated with higher prevalence of MSD symptoms.
- The size of the workplace was not associated with a higher prevalence of MSD symptoms.
- Additionally, the data show how the type of occupation within the HeSCare sector is also associated with different levels of MSD symptoms. The data from EWCTS categorises occupations into two types: Health professionals[26] and Health associate professionals[27]. and it shows that health associate professionals have a higher prevalence of MSDs when compared to health professionals.
- These findings highlight the importance of considering demographic factors such as gender and age, as well as occupational characteristics, in understanding the prevalence of MSD symptoms among workers in the HeSCare sector.

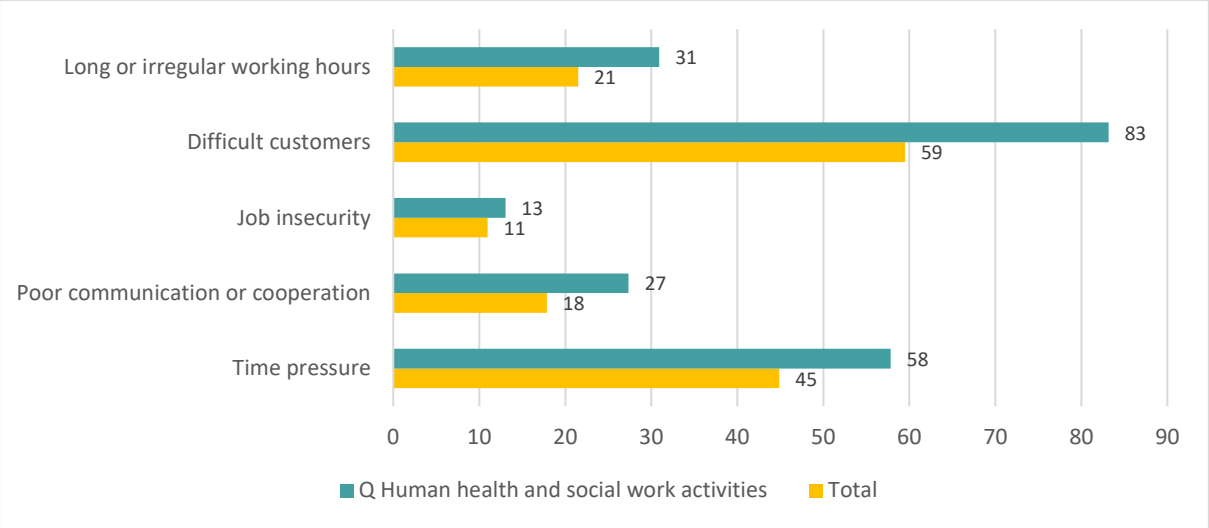
Source: TNO, based on the EWCTS-21

3.1.2 Psychosocial risks

Psychosocial risk factors encompass a range of challenges, including incidents of aggression, violence and harassment, exposure to traumatic events (such as emotionally disturbing or volatile situations), high workload, high work pace, working shifts, solitary work, instances of mobbing or bullying, and a lack of control over one's work (EU-OSHA, 2023c). **Compared to other sectors, HeSCare sector establishments indicate higher levels of exposure to several psychosocial risk factors**, as indicated by data from ESENER-19 (Figure 38). As can be seen in Figure 39, **more establishments indicated the presence of psychosocial risk factors in 2019 when compared to 2014**.

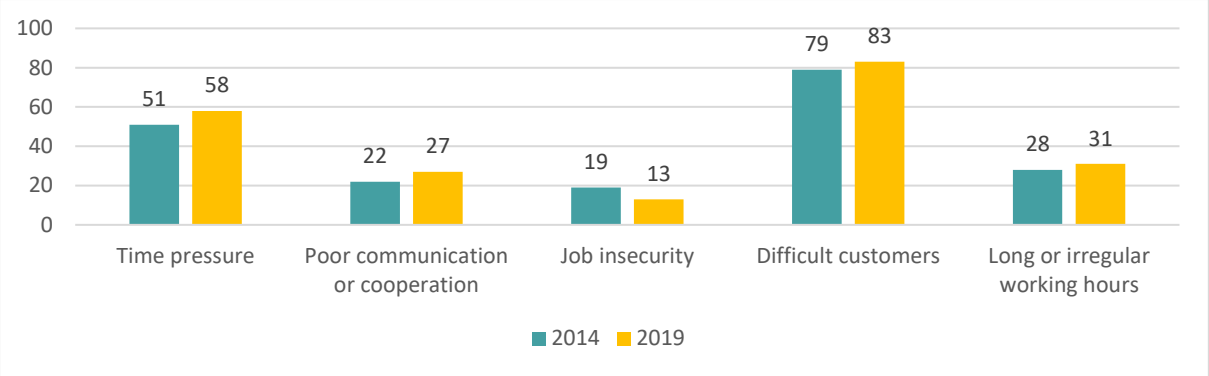
[26] Health professionals (except nursing) conduct research, improve or develop concepts, theories and operational methods, and apply scientific knowledge relating to medicine, dentistry, veterinary medicine, pharmacy, and promotion of health.
[27] Health associate professionals perform technical tasks related to research and the practical application of concepts, principles and operational methods in the fields of medicine, veterinary medicine, dentistry/, pharmacy, sanitation, promotion of health and related disciplines.

Figure 38: Percentage of establishments indicating psychosocial risk factors, by sector, EU-27, 2019 (% indicating yes)



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

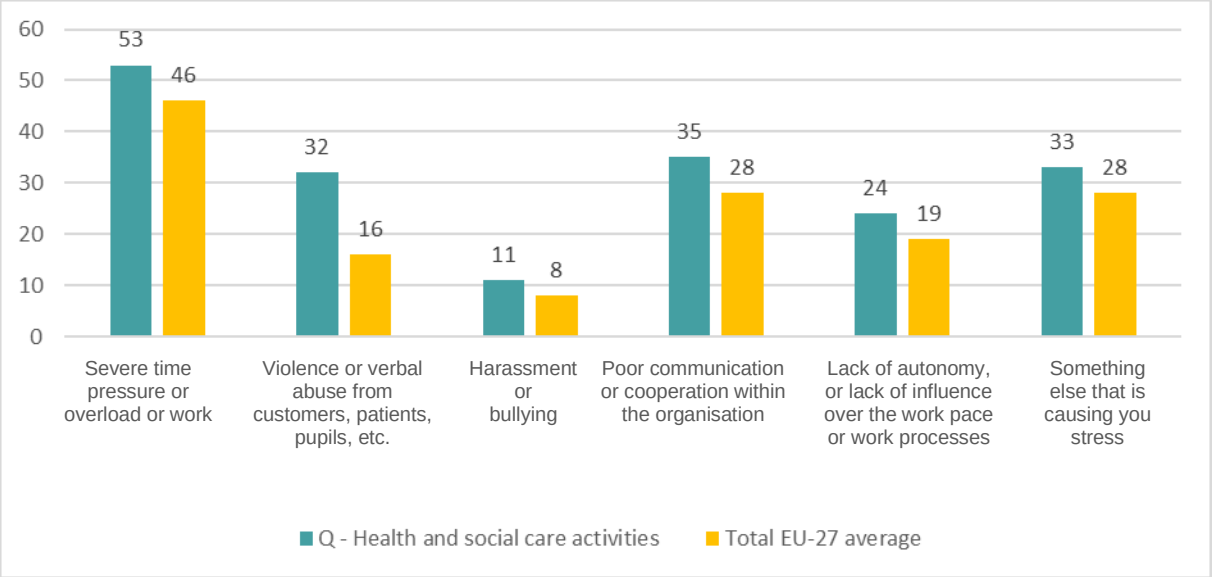
Figure 39: Percentage of HeSCare establishments indicating psychosocial risk factors, EU-27, 2014 and 2019 (%)



Source: Panteia based on ESENER-2014 and ESENER-2019
Base: All HeSCare sector establishments in the EU-27.

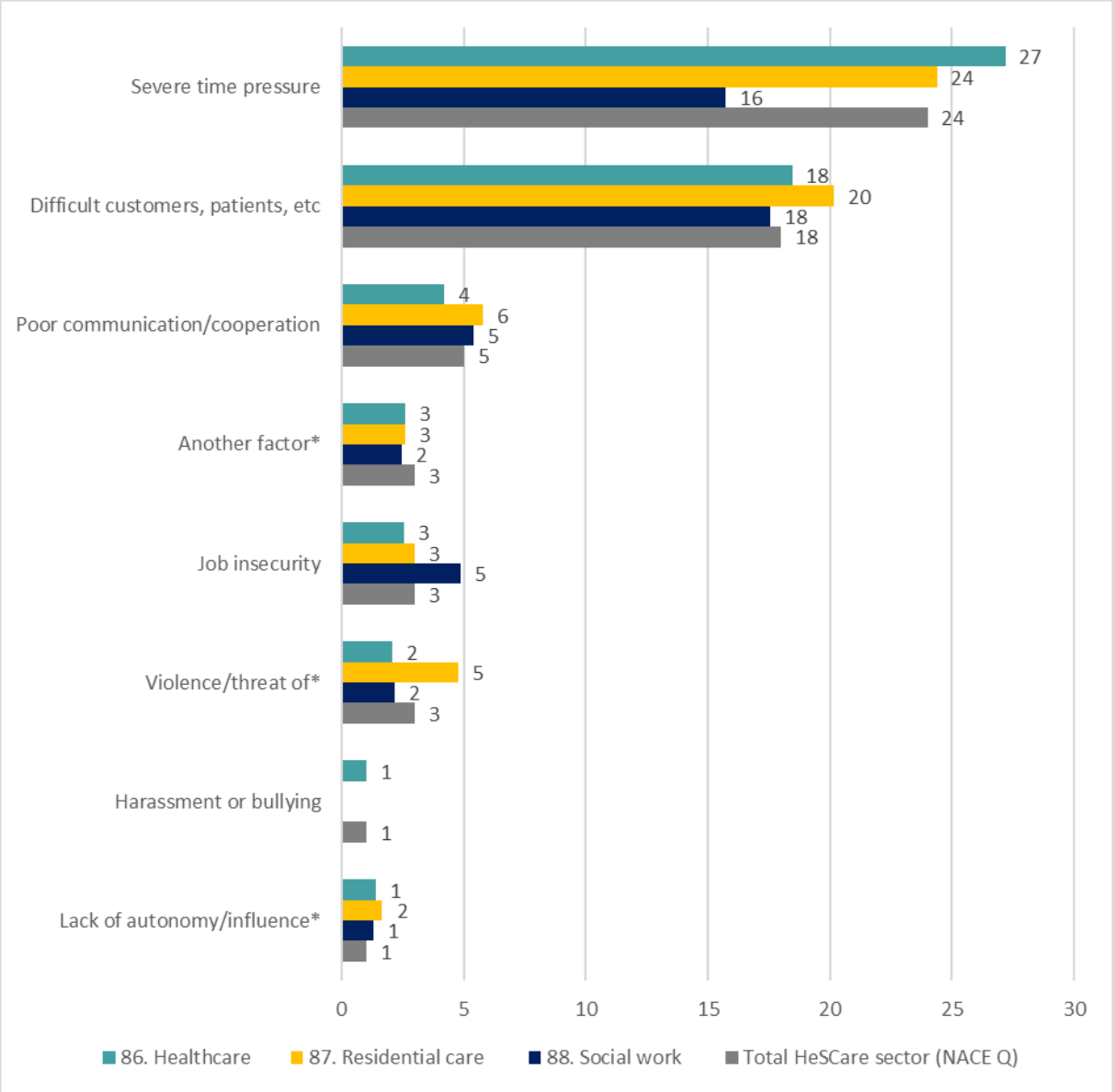
Data from the OSH Pulse 2022 Survey show a similar pattern: for all psychosocial risk factors, HeSCare workers report a higher rate of exposure compared to all workers (see Figure 40). LFS data, in addition to the data from the OSH Pulse 2022 Survey, show that **the most reported psychosocial risks within the HeSCare sector are severe time pressure, as well as the risk of dealing with difficult service receivers such as patients, their family members etc.** The LFS data show that workers in residential care are the most exposed to violence and threats of violence, as well as difficult customers and patients (Figure 41). In the case of exposure to violence, this is also confirmed by data from the EWCTS.

Figure 40: Percentage of workers exposed to a selection of psychosocial risk factors at work, by sector, EU-27, 2022 (%)



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

Figure 41: Estimated prevalence of exposure to risk factors that can adversely affect mental well-being by type of problem, by subsector, EU-27, 2020 (%)

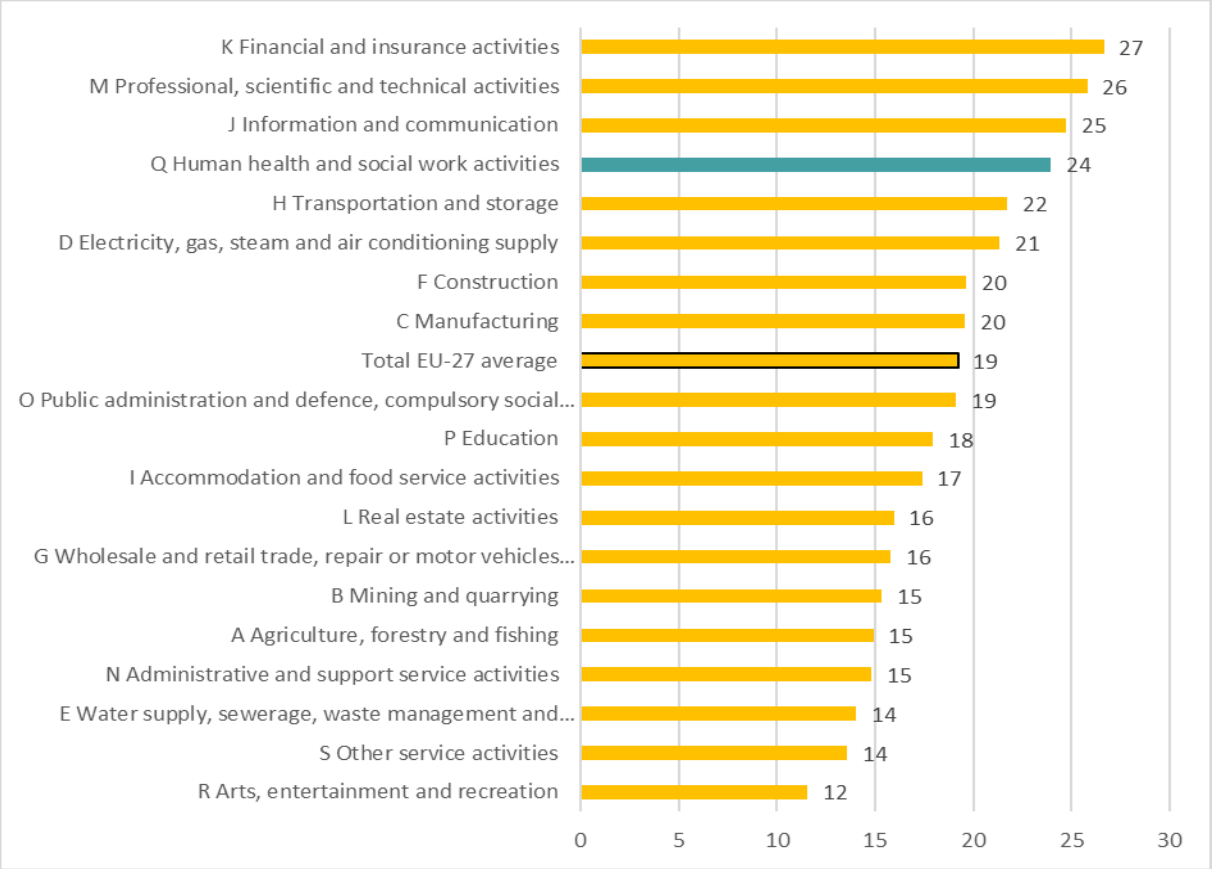


Source: EU Labour Force Survey, 2020
Base : % of total employed exposed and not exposed, age group 15-64.

- **High workload / time pressure**

One of the most common psychosocial risks is high workload and time-pressure, which may lead to significant levels of stress. Data from the 2020 LFS Survey show that workers in the HeSCare sector report high levels of exposure to severe time pressure that can adversely affect mental well-being. Only workers in Information and Communication (NACE code J), Professional, scientific, and technical activities (NACE code M) and Financial and assurance activities (NACE code K) report higher levels of exposure, as shown in Figure 42.

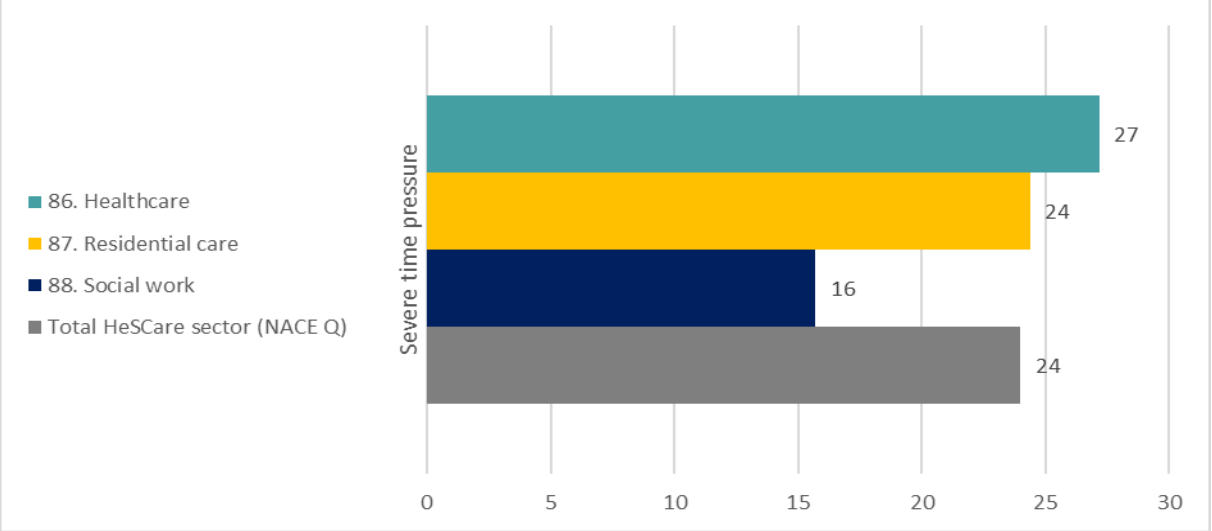
Figure 42: People reporting exposure to severe time pressure that can adversely affect mental well-being, by sector, EU-27, 2020 (%)



Source: EU Labour Force Survey, 2020
Base: % of total employed, age group 15-64.

A comparison of the three subsectors shows that **healthcare workers and residential care workers report significantly higher levels of exposure to severe time pressure** than workers in the social work subsector (Figure 43).

Figure 43: Estimated prevalence of exposure to severe time pressure within HeSCare, by subsector, EU-27, 2020 (%)



Source: EU Labour Force Survey, 2020
Base: % of total employed exposed and not exposed, age group 15-64.

This can be explained by the fact that in these sectors there is a high patient influx or demand for services, which is also being exacerbated by a global shortage of health and social care professionals due to the ageing population, increased patient–professional ratios and workload (EU-OSHA, 2023c). In addition, due to staff shortages, doctors and other healthcare professionals are commonly asked to perform tasks that normally fall outside of their activities (illegitimate work tasks) and often work in multiple roles within the organisation (EU-OSHA, 2014).

Box 3: Further analysis of EWCTS data variables relating to PSR

Further analysis of EWCTS data variables relating to PSR show a number of interesting findings (see Methodological appendix 1):

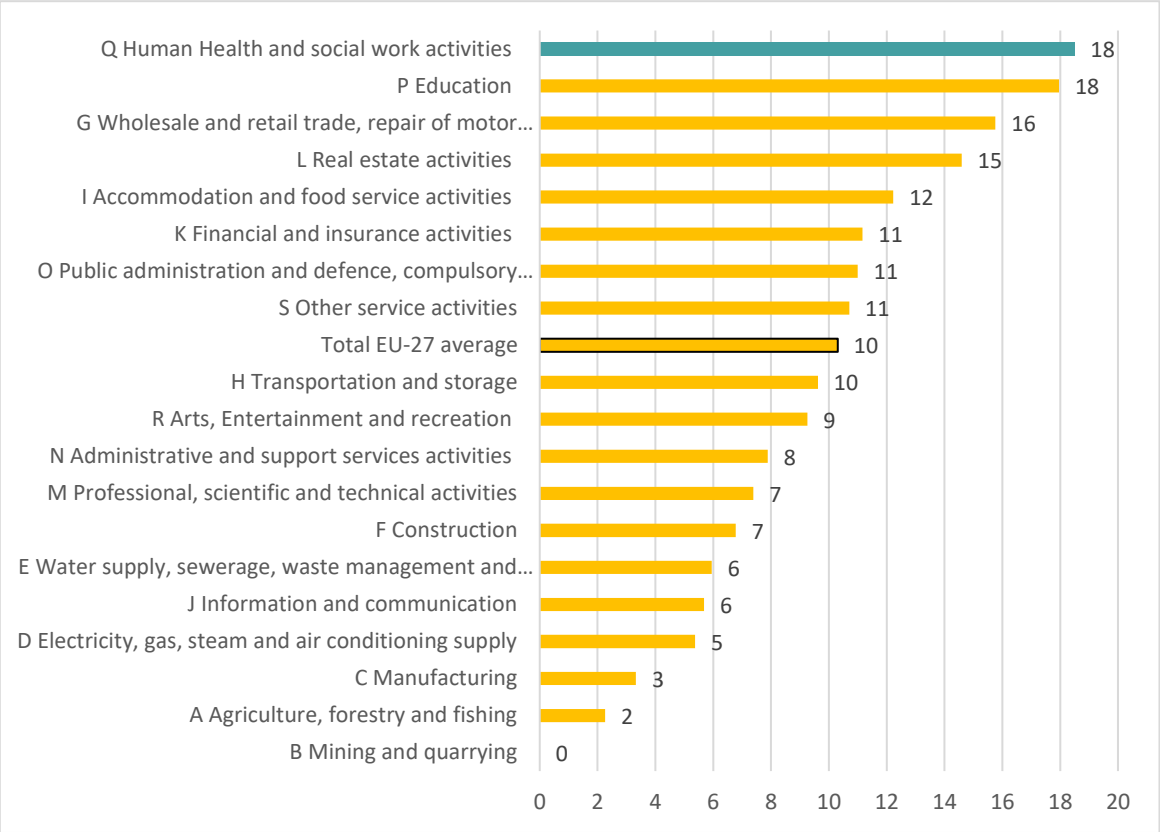
- Regarding the risk of emotional exhaustion, workers in the highest age group (over 56 years) were at a significant lower risk than younger workers (16-34 years). This could be for several reasons, including more accumulated years of experience leading to greater resilience in handling job-related stressors, better work-life balance and more developed social support networks.
- Health professionals have a lower risk of emotional exhaustion when compared to health associate professionals, possibly due to greater autonomy and control over their work.
- Workers in larger organisations are at a higher risk of emotional exhaustion when compared to those in smaller ones, which can often be associated with the fact that larger organisations in HeSCare are more likely to have higher patient volumes, heavier workloads and increased pressure, less autonomy and decision-making authority.
- Discrimination, violence, harassment and work intensity are identified as significant factors associated with emotional exhaustion. This suggests that workplace conditions characterised by discrimination, violence, harassment and high work intensity contribute significantly to emotional exhaustion among workers.

Source: TNO, based on the EWCTS-2021

- **Dealing with difficult customers / patients**

According to ESENER-19 data, **dealing with challenging/emotionally demanding patients represent the most frequent (and severe) psychosocial risk in HeSCare** (EU-OSHA, 2023c). This finding is supported by 2020 LFS data (Figure 44). Workers in the HeSCare sector report the highest exposure to dealing with difficult service receivers, patients, etc that can adversely affect mental well-being.

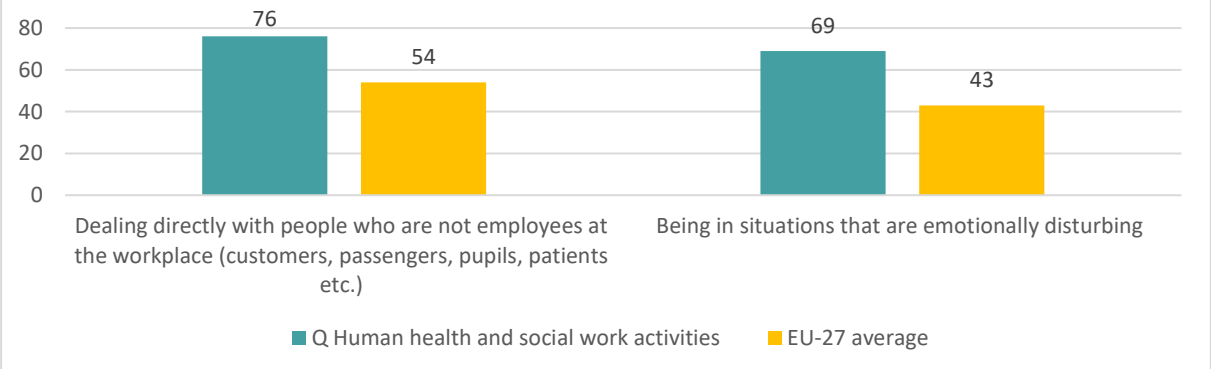
Figure 44: People reporting exposure to dealing with difficult customers, patients, pupils, etc that can adversely affect mental well-being, by sector, EU-27, 2020 (%)



Source: EU Labour Force Survey, 2020
Base : % of total employed exposed and not exposed, age group 15-64.

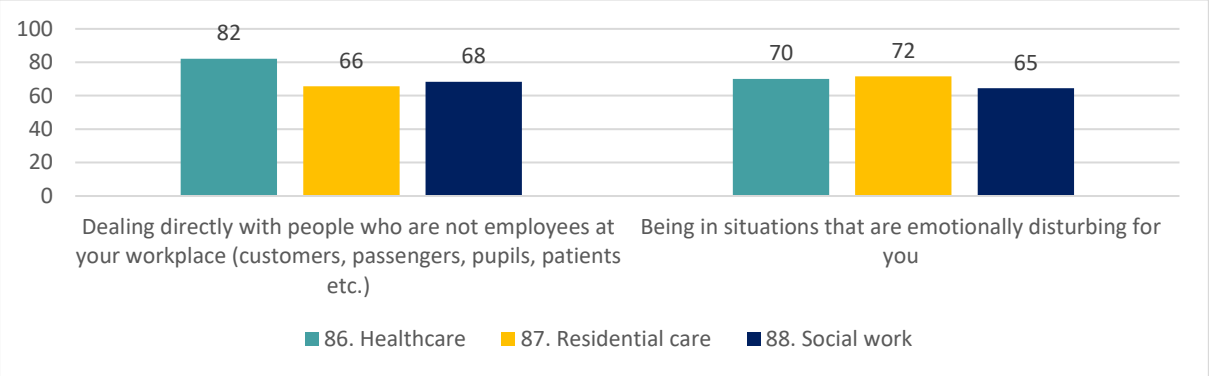
These findings from the 2020 LFS are supported by data from the 2021 EWCTS, which can be seen in Figure 45. In this survey, workers were asked if they had to deal directly with people not employees at the workplace, as well as if they were in situations that are emotionally disturbing. The **data show that workers in the HeSCare sector more often have to deal with people who are not employees at the workplace**, as well as are more often in **situations that are emotionally disturbing**. Further analysis shows that for both questions of the EWCTS, differences between subsectors are minimal, apart from healthcare workers being more likely to deal directly with service receivers when compared to other sectors (Figure 46).

Figure 45: Percentage of workers being sometimes/often/always dealing directly with people not employees at the workplace and in situations that are emotionally disturbing, by sector, EU-27, 2021 (%)



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

Figure 46: Percentage of HeSCare sector workers being sometimes/often/always dealing directly with people not employees at the workplace and in situations that are emotionally disturbing, by subsector, EU-27, 2021 (%)



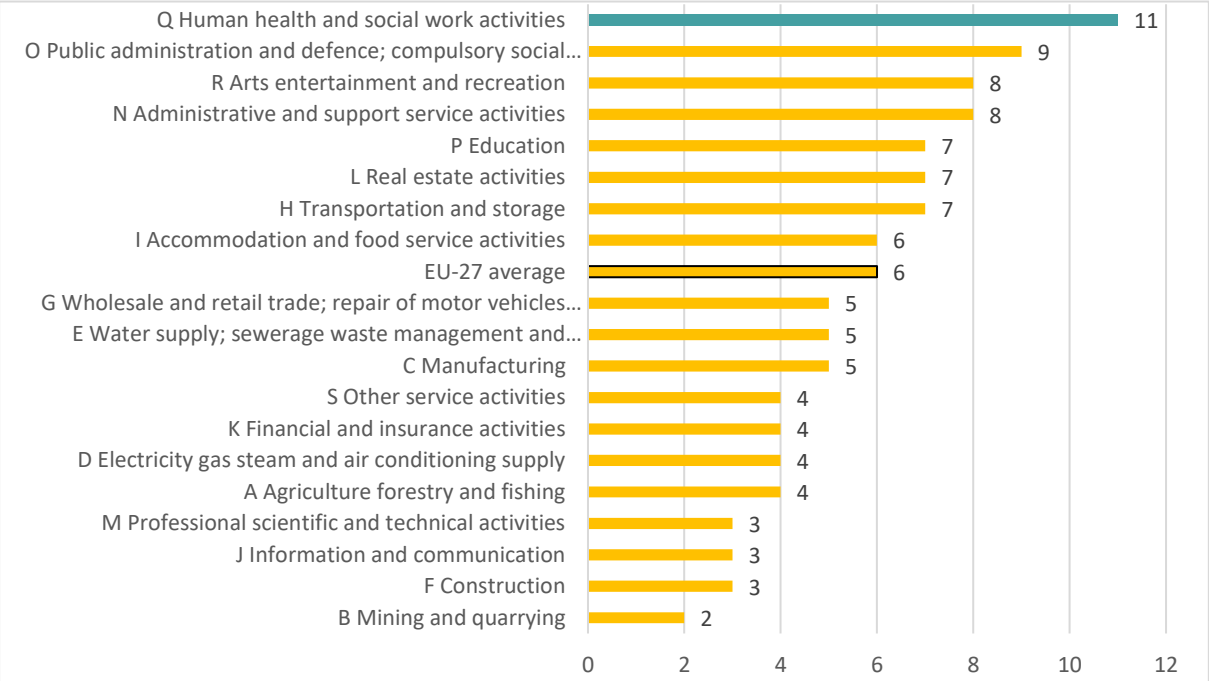
Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27.

HeSCare work can usually be characterised as emotionally demanding (Eurofound, 2020c). Emotional demands refer to the effort of workers that is required to regulate their emotions, including keeping oneself composed as a professional when faced with emotionally loaded situations and people in stressful life situations. Examples of such demands are dealing with pain and anxiety of patients, dealing with pressure from patients' relatives, caring for people with severe and terminal illnesses, and dealing with emergencies or (other) traumatic events. Caring for people at the end of their lives is often considered to be one of the most stressful aspects of nursing work (Hopkinson et al. 2005). This may be the cause of the high rate of exposure of dealing with challenging customers / patients as well as being in situations that are emotionally disturbing.

- **Violence, harassment and bullying**

Another major psychosocial risk is workplace violence (from service receivers), which encompasses acts or threats of violence that can range from verbal abuse to physical assaults, directed at individuals while they are at work or on duty (CDC, 2022). This risk is particularly present in situations in which HeSCare workers are working alone or outside normal working hours, handling medication (e.g., unwillingness of patients to take prescribed medication), providing or withholding care activities, exercising authority, and working with people who are stressed, or emotionally or mentally unstable or under the influence of substances (EU-OSHA, 2023c). Compared to other sectors, **workers in the HeSCare sector reported the highest prevalence of any type of intimidation (i.e., verbal abuse; unwanted sexual attention; and bullying, harassment, or violence)** based on data from the recent EWCTS (Figure 47).

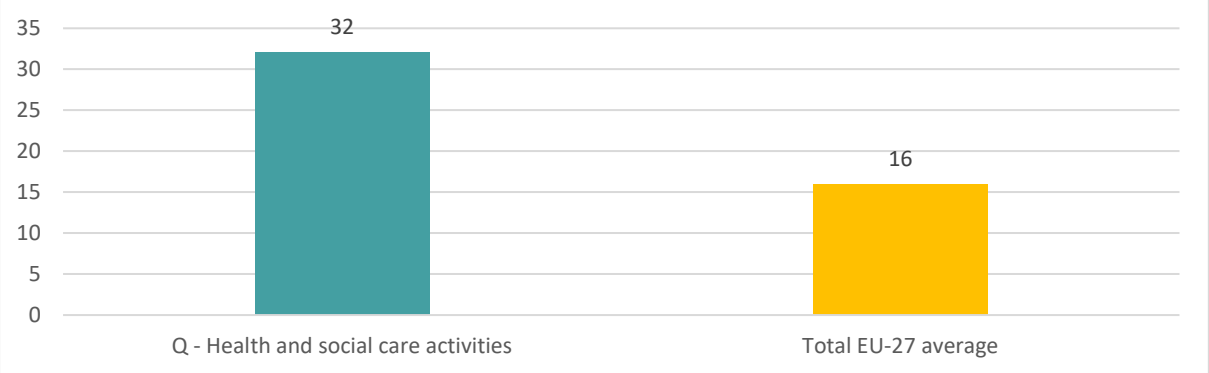
Figure 47: Percentage of workers subjected to bullying, harassment, by sector, EU-27, 2021 (%)



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

Similarly, in the OSH Pulse 2022 Survey, reported **exposure to violence and verbal abuse from members of the public was highest for the HeSCare sector** (32%) when compared to all sectors (16%) (Figure 48).

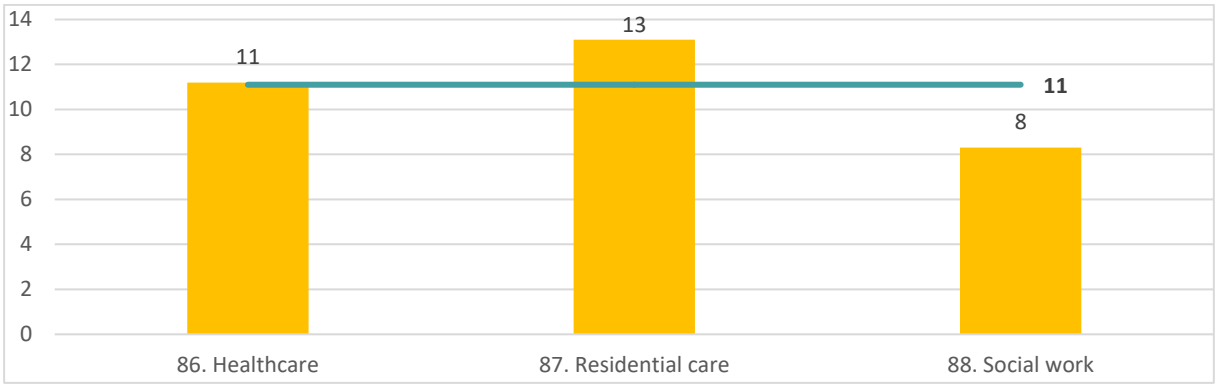
Figure 48: Percentage of workers exposed to violence or verbal abuse from customers, patients, pupils, etc., by sector, EU-27, 2022 (%)



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

Results from the 2020 LFS Survey report similar findings: for both exposure to violence as well as harassment and/or bullying. Workers in the HeSCare sector report a high exposure level to threat or violence (3%), in comparison to other sectors (EU average of 1%). Analysis of the 2020 EWCTS data show that there are only minor differences in between the three subsectors regarding violence, harassment and bullying (Figure 49).

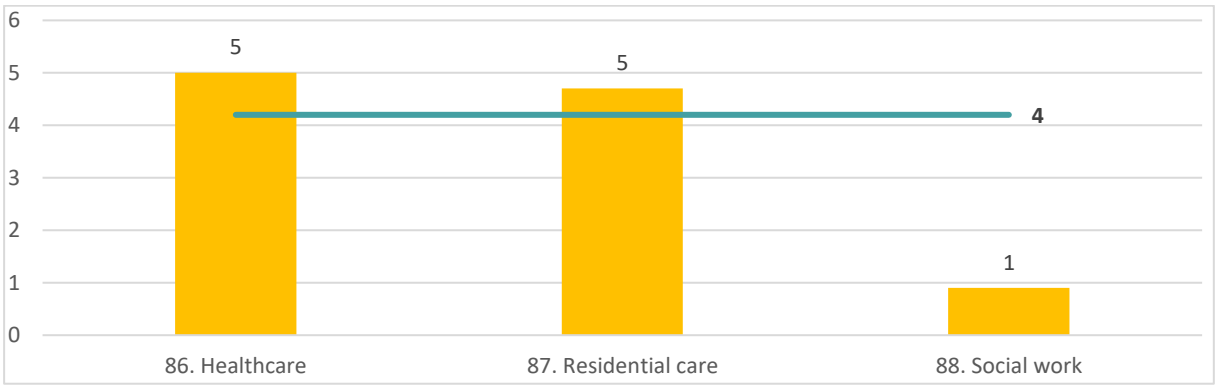
Figure 49: Percentage of HeSCare sector workers subjected to violence, bullying, harassment, by subsector, EU-27, 2021 (%)



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

When analysing the subject of unwanted sexual attention, there is somewhat of a difference between the three subsectors. As shown in Figure 50, **workers in the social work subsector are considerably less likely to be exposed to unwanted sexual attention in comparison to workers in healthcare and residential care** (only 1%, when compared to 5% in both healthcare and residential care).

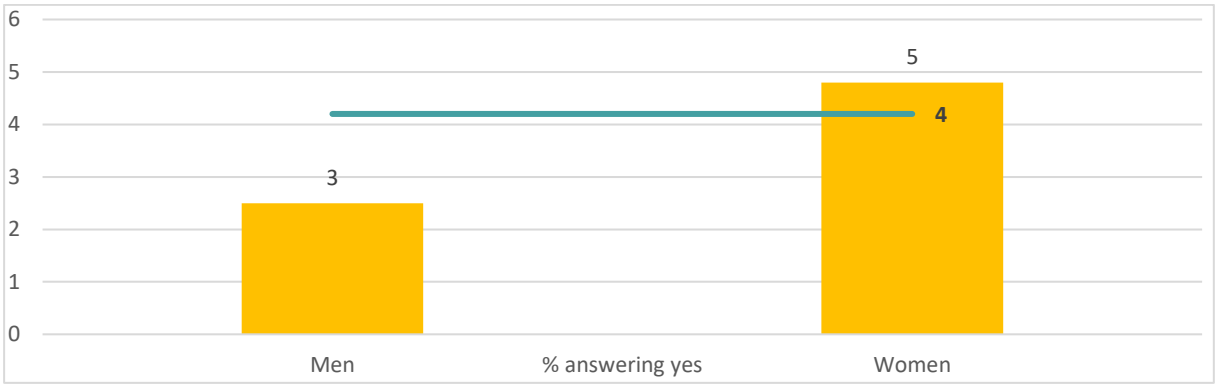
Figure 50: Percentage of HeSCare sector workers subjected to unwanted sexual attention, by subsector, EU-27, 2021 (%)



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.

As for gender differences, EWCTS data show that **women workers are more likely to be exposed to unwanted sexual attention than male workers** (Figure 51). Further analysis of the EWCTS data (see Methodological appendix 1) show that discrimination and violence/harassment/bullying can be linked to MSD symptoms, as well as to emotional exhaustion.

Figure 51: Percentage of HeSCare sector workers subjected to unwanted sexual attention during the course of work, by gender, EU-27, 2021 (%)



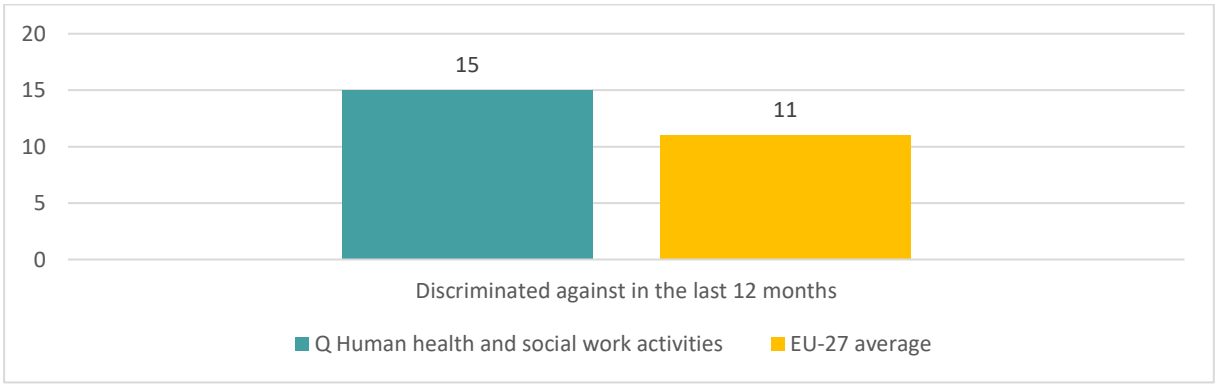
Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

- **Discrimination**

EU legislation (Directive 2000/78/EC on Equal Treatment) prohibits discrimination on various grounds, aiming to combat discrimination based on religion or belief, disability, age, gender, sex, or sexual orientation in the workplace. All employees should receive equal treatment in areas such as requirement, working conditions, training, and career advancement, regardless of their characteristics, and employers must ensure equal access to employment opportunities to employees that have disabilities. **The HeSCare sector is characterised for its gender-based structural inequality which leads to a devaluation of care work**, as seen in the feminisation of the health sector. In 2020, 78% of health workers in the EU were women nevertheless, they are **underrepresented in decision-making positions within European health systems** (EIGE, 2021a). Major improvements are required across various aspects including working conditions, recruitment practices, opportunities for career advancement, women in leadership positions, work-life balance and measures to prevent sexual harassment and violence (Resistire, 2021).

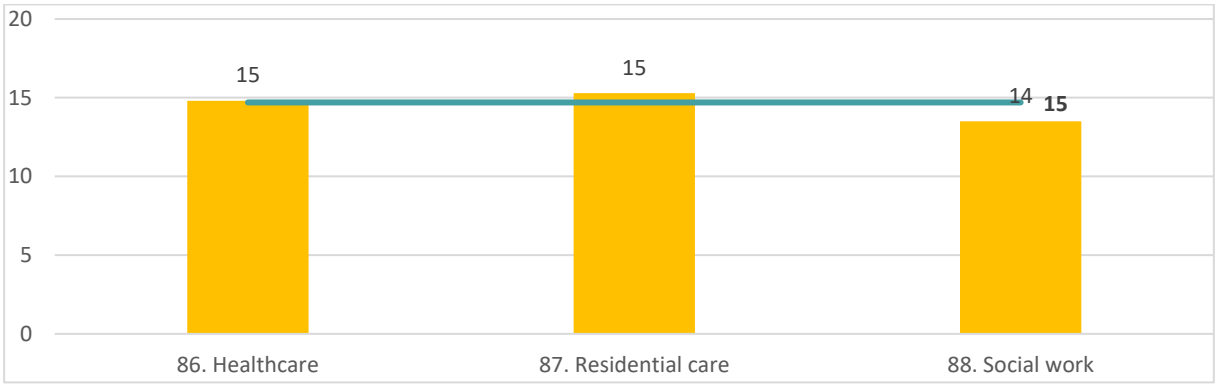
The EWCTS survey shows that **HeSCare workers reported the highest prevalence of discrimination** (15%) compared to all sectors in the total economy (11%) (Figure 52). The level of exposure to discrimination is similar across all three subsectors, as shown in Figure 53.

Figure 52: Percentage of workers that have been discriminated at work over past 12 months, by sector, EU-27, 2021 (%)



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

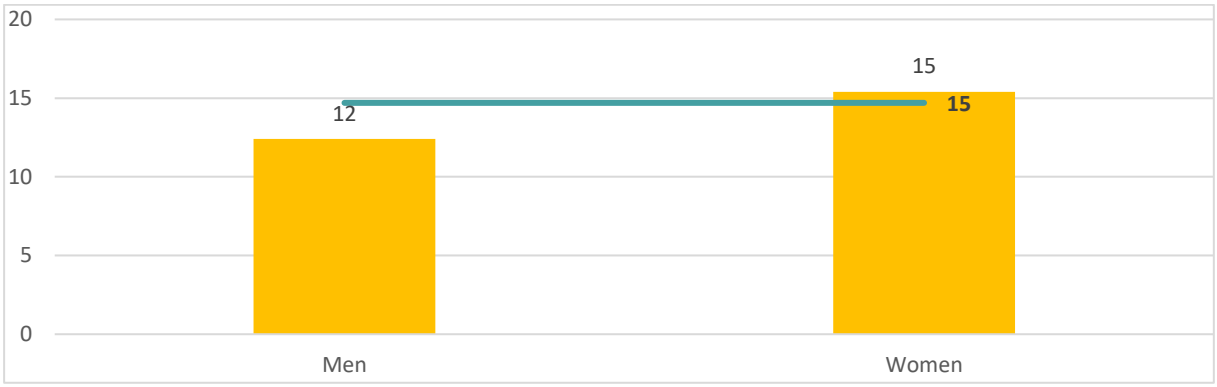
Figure 53: Percentage of HeSCare sector workers that have been discriminated at work over past 12 months, by subsector, EU-27, 2021 (%)



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

As for gender differences, the EWCTS data show that **women workers are more likely to be exposed to discrimination than male workers** (Figure 54).

Figure 54: Percentage of HeSCare sector workers that have been discriminated at work over past 12 months, by gender, EU-27, 2021 (%)

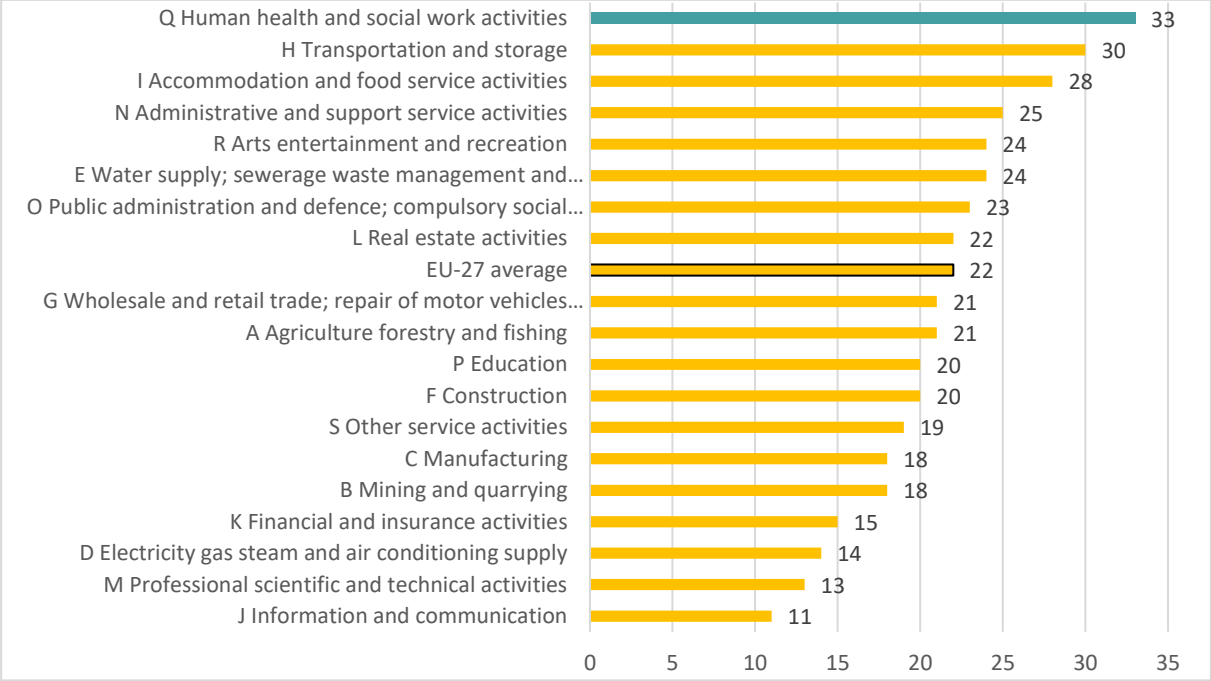


Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

3.1.3 Co-exposure for MSK risk factors and psychosocial risk factors

Research shows that different groups of factors may contribute to MSDs, including physical, organisational, psychosocial, sociodemographic and individual factors. Most of the time, these factors interact with each other. Data from the 2021 EWCTS show that workers in the HeSCare sector have the highest share of co-exposure to MSK and psychosocial risks (Figure 55).

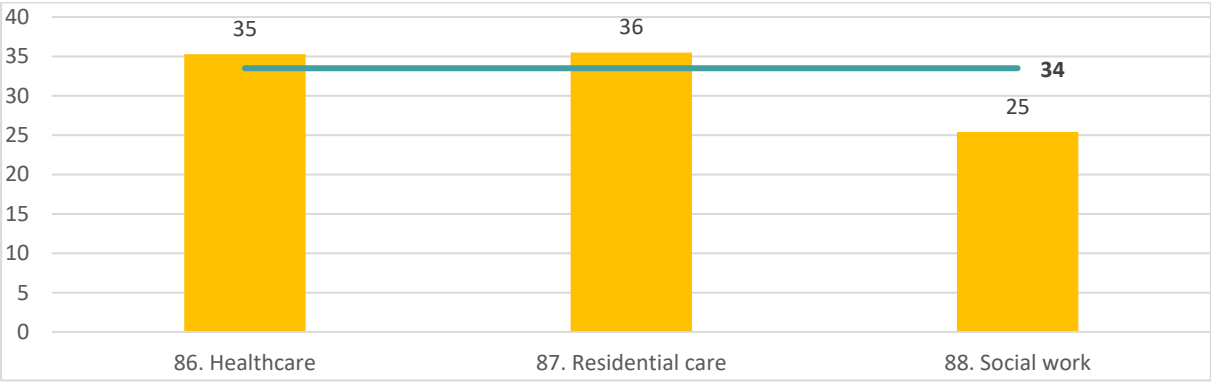
Figure 55: Percentage of workers with co-exposure* to musculoskeletal and psychosocial risks, by sector, EU-27, 2021(%)



Source: TNO based on the EWCTS-2021
Base: All workers in the EU-27.
(*) Co-exposure defined as: one or more physical risks (MSK) and low social support combined with low task autonomy combined with high work intensity (PSR).

The exact reason for this co-exposure to MSK and psychosocial risks is not well understood, although severe time pressure could be an important factor. When analysing the subsectors, it is apparent that workers in the **social work subsector are less co-exposed to MSK and psychosocial risk factors when compared to healthcare workers and residential care workers** (Figure 56). This could be explained by the nature of social work that implies more consultancy, problem solving, developing intervention for service receivers with the aim to empower or improve people's lives. This contrasts with treatment or care per se that implies MSK exposure. Residential and healthcare workers face more emergency situations and emotionally loaded situations.

Figure 56: Percentage of HeSCare sector workers with co-exposure* to musculoskeletal and psychosocial risks, by subsector, EU-27, 2021 (%)



Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27.
(*) Co-exposure defined as: one or more physical risks (MSK) and low social support combined with low task autonomy combined with high work intensity (PSR).
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

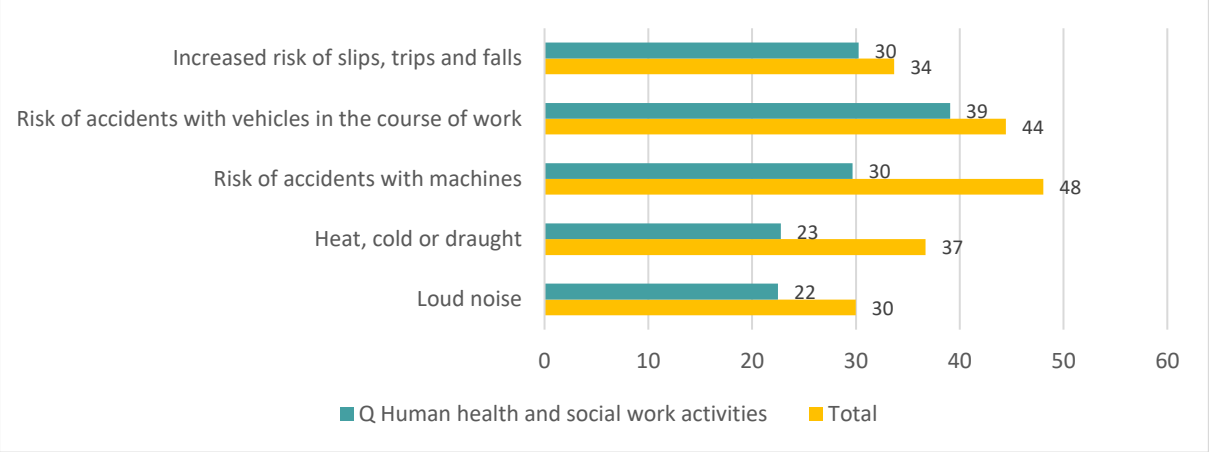
3.1.4 Physical, chemical and biological risks

This section examines the main physical, chemical and biological risks faced by workers in the HeSCare sector. Physical risks in OSH refer to the potential risks that can cause physical harm or injury to workers due to physical agents, factors or conditions present in the workplace. Examples are vibrations, noise and/or exposure to heat, cold and draughts. Dangerous substances are substances which can be harmful to humans and are chemical or biological in nature. When referring to chemical risks, any liquid, gas or solid that poses a risk to workers' health or safety is mentioned.

- **Physical risks**

HeSCare workers are exposed to a number of physical risks, including excessive level of noise, non-ionising radiation and ionising radiation (EU-OSHA, 2022b). Furthermore, the risks of accidents with machines, the risk of accidents with vehicles in the course of work as well as (increased) risks of slips, trips and falls are considered physical risks. Analysis of the data from ESENER-19 shows that establishments in the **HeSCare sector are less exposed to physical risks, in comparison with the EU-27 average across all other sectors** (Figure 57).

Figure 57: Types of physical, chemical and biological risks indicated by establishments, by sector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: All establishments in the EU-27.

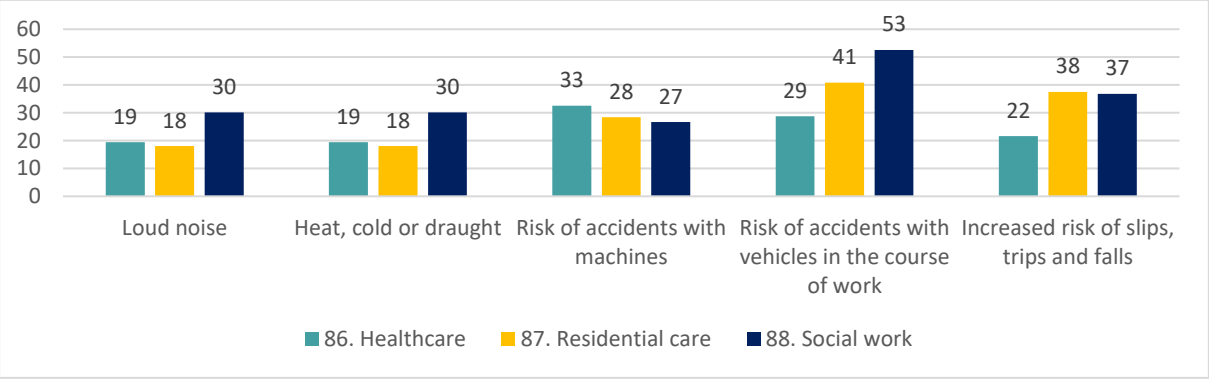
Analyses on the differences between subsectors shows a number of differences (see Figure 58). For instance, the risk of accidents with machines is slightly higher in healthcare than residential care and social work. The prevalence is lower in the healthcare subsector for all other physical risks (exposure to loud noise, exposure to heat, draught or cold, risk of accidents with vehicles in the course of work and the increased risks of slips, trips and falls) than residential care and social work. This can be explained by the differences in the nature of work of the three subsectors:

- Exposure to **excessive noise**, due to use of specialistic machinery or equipment, can disturb the work performance and have different negative impacts, such as hearing impairment, tinnitus, or acoustic trauma (EU-OSHA, 2014). Along with a negative auditory effect, excessive noise can cause a range of health problems, such as high blood pressure, high stress level or cardiovascular disorders (EU-OSHA, 2014). Analyses of the data from ESENER-2019, shows that the risk of loud noise is reported almost twice more in the social work subsector compared to the other subsectors. EU-OSHA has also concluded that noise is an especially common physical risk affecting those who work in hospitals and residential facilities. Despite the recommendations of the WHO that daytime sound levels in hospitals should not exceed 35 dB, the average sound level in many hospitals can be twice as high (EU-OSHA, 2022a).
- Similarly, the risks of **working in heat, cold or draught**, are more often indicated by establishments in the social work subsector, compared to the healthcare subsector and residential care subsector. This has probably the same reason as described above with regards to exposure to noise: social

work workers usually have no or very limited control over their working environment, which may lead to more exposure to such climate related risks.

- The risk of **accidents with machines** is comparable for all three subsectors. In the healthcare subsector, this is most likely due to the many apparatuses (and machines) located on the hospital's premises, including imaging devices, mechanical beds and stretchers, patient lifts etc. Additionally, non-medical staff of hospitals, working in for example kitchens, laundry rooms or mechanical workshops, use in their daily work machines to support the delivery of healthcare services. These ordinary machines are the cause of many work-related injuries both in healthcare and in the other subsectors. Knowledge on the risks associated with the use of machinery and apparatus in the healthcare subsector is scarce. Additionally, the level of implementation of the best practices concerning safety of use of machineries in the workplace is lower in the healthcare subsector than in for example the industrial sector (Tremblay, J.C, et al, 2018).
- The risk of **accidents with vehicles** in the course of work is also higher among workers in the social work subsector, compared to residential care workers and healthcare workers as many home care workers travel from one patient to the other. They are also more exposed to physical risks associated with road traffic accidents (EU-OSHA, 2014).
- **Slips, trips and falls** are the most common cause of injuries to all workers in Europe (EU-OSHA, 2022b). Despite the common nature, tripping, slipping, or falling can result in various serious injuries, including broken bones and back injuries (EU-OSHA, 2014). These types of injuries are most common among housekeepers and carers followed by nurses and ambulance staff (EU-OSHA, 2022a). This is also reflected in the data from ESENER-2019: residential care workers as well as workers in the social care sector are more exposed to such risks than healthcare workers. As many social care workers travel from one patient to the other, they are more exposed to slips or falls outside of the patient's home as these are not constructed according to universal design to promote accessibility (EU-OSHA, 2014).
- There is a lack of relevant data from the surveys analysed in the context of this report with regards to the risk of exposure to **radiation** for the HeSCare workers, which can cause skin and blood damage, infertility and cancer, among others. Workers are most often exposed to radiation while performing an x-ray or delivering radiation cancer treatment (EU-OSHA, 2014). The effect of the radiation depends on the type of radiation, proximity, dose and duration of the exposure (EU-OSHA, 2016a). Therefore, it is important to cautiously monitor the health of workers who are exposed to radiation while performing their tasks in the HeSCare sector (EU-OSHA, 2016a). Exposure to ionising radiation is monitored strictly, based on Directive 2013/59/Euratom laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation. The three principles, which need to be considered are duration, proximity and shielding according to dose (EU-OSHA, 2016a).

Figure 58: Types of physical risks indicated by HeSCare establishments, by subsector, EU-27, 2019 (%)

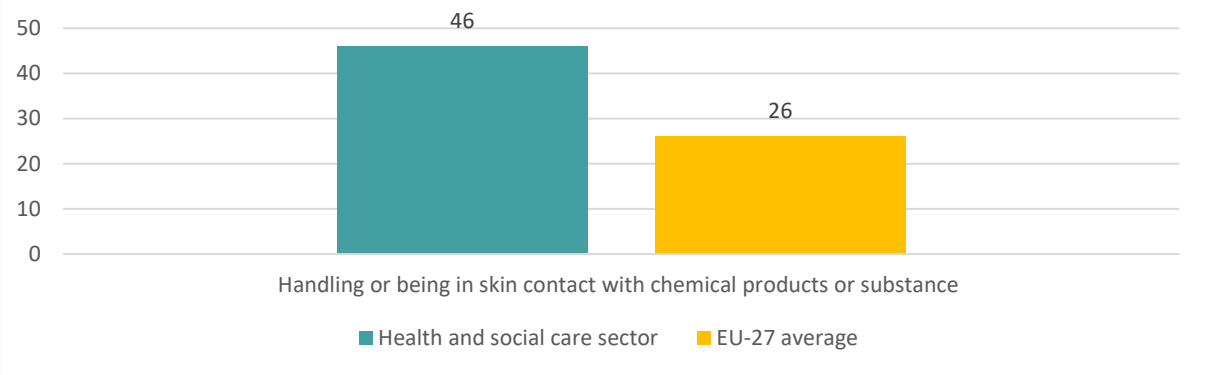


Source: Panteia based on ESENER-2019
Base: All HeSCare sector establishments in the EU-27.

Chemical risks

Workers employed in the HeSCare sector, especially those who work in healthcare and residential care, are faced with various chemical risks during their everyday work. According to data from the EWCTS, workers in the **HeSCare sector are more frequently exposed to chemical products or substances than the average for all EU-27 workers** (Figure 59).

Figure 59: Percentage of workers sometimes/often/always exposed at work to chemical risks, by sector, EU-27, 2021 (%)

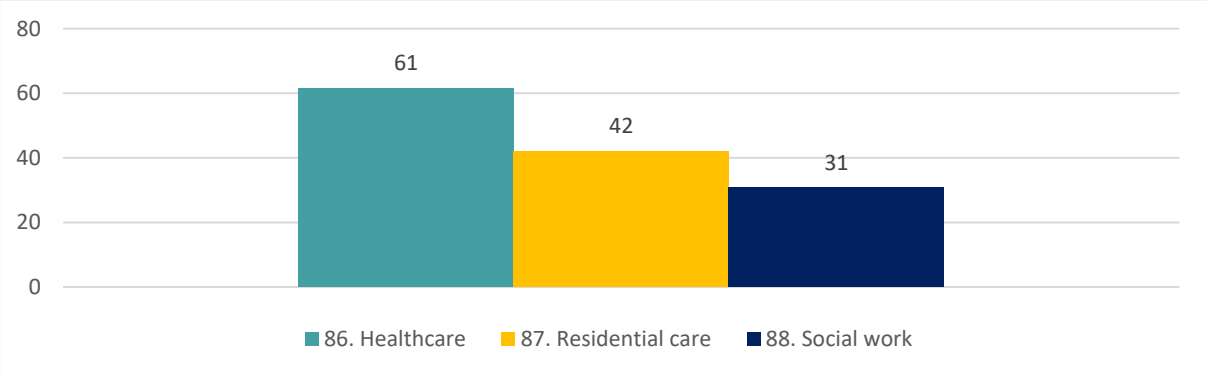


Source: TNO based on the EWCTS-2021
Base: All workers in the EU-27.

Hazardous substances are used in the healthcare and residential care subsectors for a variety of reasons, including treating patients, laboratory work, cleaning etc. Chemical risks are highly prevalent in the HeSCare sector since some dangerous pharmaceuticals do not fall under the mandatory labelling law of the European Directives (EU-OSHA, 2022a). Workers may absorb chemicals through inhalation or through dermal exposure. The chemical risks in the healthcare and residential care subsectors can derive from substances used for the treatment of patients and from cleaning detergents (EU-OSHA, 2014). The latter are essential for eradicating bacteria and keeping the hospital environment sterile but can cause a significant risk to the health of patients and workers (EU-OSHA, 2014). Data from both ESENER-2019 and the EWCTS-2021 show differences between the three subsectors.

Data from ESENER-19 (Figure 60) show that **establishments within the healthcare subsector report almost double the exposure to chemical and biological substances compared to establishments within the social work subsector**.

Figure 60: Exposure to chemical or biological substances indicated by HeSCare establishments, by subsector, EU-27, 2019 (%)



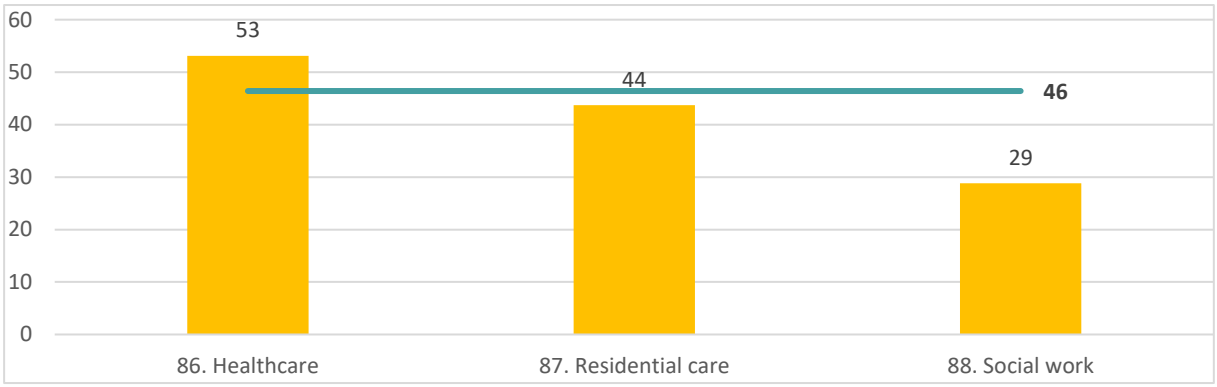
Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27.

Data from the EWCTS-2021 confirm these findings (see Figure 61): although the differences are somewhat smaller: workers within the healthcare subsector as well as residential care subsector are more often exposed to chemical risks. Although exposure in the home care activities (included in the

social work subsector) to chemical risks is lower, workers in this sector are also exposed to some degree. Due to lack of supervision typical to this type of home-based employment, many chemical risks are caused by incorrect handling of chemicals, resulting from preclusive conditions or carelessness (EU-OSHA, 2014). Additionally, home care workers are not always aware of what medications the patients are taking, which increases risks connected to administrating drugs (EU-OSHA, 2014).

Preparing and administering drugs is a risk to all workers in the HeSCare sector. Hazardous medicinal products can have cancerogenic or mutagenic effects or be toxic for reproduction. (European Commission, 2023c). Drugs used in chemotherapy, which can be introduced to the workers' bodies through a needlestick accident or an ampoule breakage, may cause serious mutagenic defects (EU-OSHA, 2014). Known side effects of many chemicals used in healthcare can have adverse effects on health of the workers including allergic reactions, impairment to their organs or chromosome abnormalities (European Commission, 2023c).

Figure 61: Percentage of HeSCare sector workers sometimes/often/always exposed at work to chemical risks, by subsector, EU-27, 2021 (%)



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

HeSCare workers are increasingly facing risks associated to the use of nanomaterials, as the use of this new technology is becoming more and more common (EU-OSHA, 2017a). Nanomaterials are particularly prevalent in the healthcare subsector and can enter the healthcare worker's body by inhalation or hand-to-mouth path and accumulate in organs or transfer various toxic materials that might be attached to them causing significant adverse effects on human health (EU-OSHA, 2017a). So far, the biggest impairment due to presence of nanomaterials reported is in workers' lungs (for example inflammation, tissue damage, oxidative stress, or tumour generation) (EU-OSHA, 2017a).

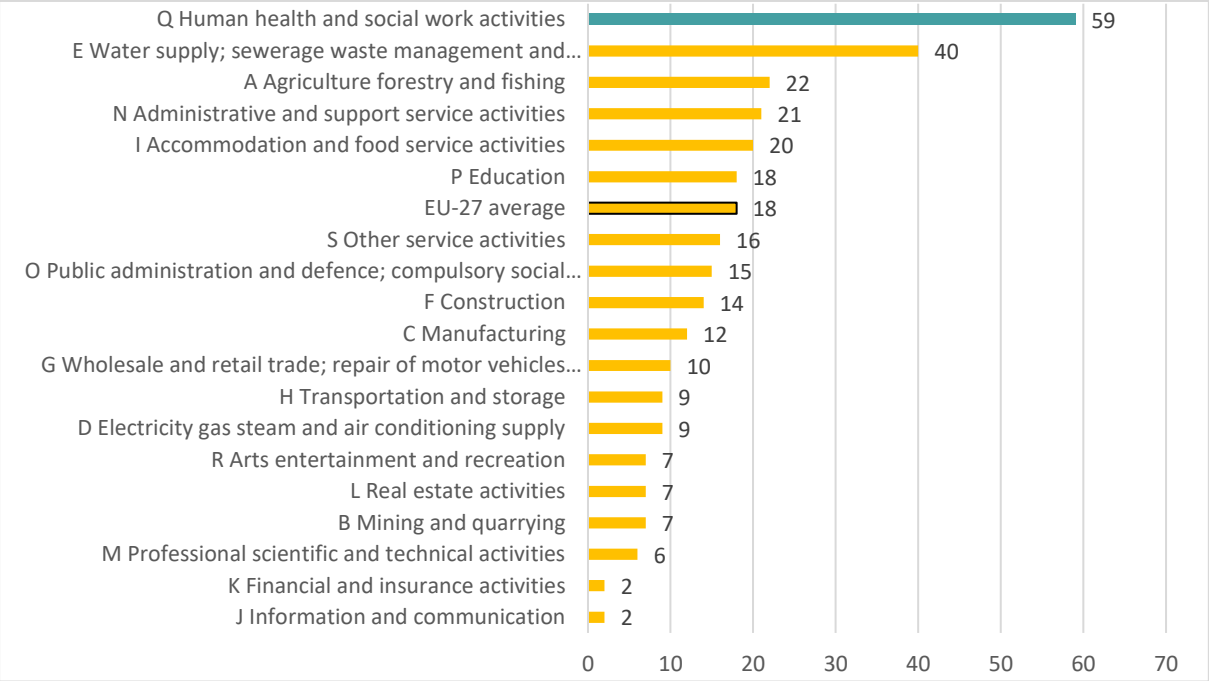
Professionals in the HeSCare sector are particularly affected by exposure to carcinogens and mutagens, as it is common in some professions to come into contact with hazardous substances, chemicals, and medication that can have carcinogenic properties which can potentially lead to cancer. Many drugs used in treating patients can cause secondary cancers in treated patients and can pose carcinogenic risks to health-sector workers in the context of patient drug administration. Directive 2004/37EC on the protection of workers from risks related to Carcinogens and Mutagens (CMD) at work sets out requirements on employers to identify carcinogenic and mutagenic substances and assess the potential risk, substitute them and provide health surveillance such as setting exposure limits (Directive 2004/37/EC). In 2020 the European Commission adopted its fourth proposal to amend the directive aiming to improve workers' health protection by reducing workplace exposure to three substances or groups of substances that may cause cancer ('carcinogens') or mutations ('mutagens'), to provide more clarity for workers, employers and enforcers and to contribute to a level playing field for economic operators (European Parliament Research Service, 2023). An important pillar of this directive is that it is guided by the prevention principle. Therefore, workers' exposure must be prevented, if replacement is not possible then employers should use a closed technological system to reduce the use of CMR by replacing them with substances that are not dangerous or are less dangerous (EU-OSHA, 2023d). In addition, employers must ensure their workforce is adequately informed and trained to handle hazardous substances. They are also responsible for preventive measures against exposure, hygiene protocols,

protective gear and procedures to follow in case of accidents. This training must consider any newly identified or modified risks (EU-OSHA, 2023d).

- **Biological risks**

Workers in the EU HeSCare sector are often exposed to biological risks. Compared to the EU-27 average across all sectors, **workers in the HeSCare sector are more than three times more likely to handle or be in direct contact with materials that can be infectious**, based on figures from EWCTS-2021 (Figure 62).

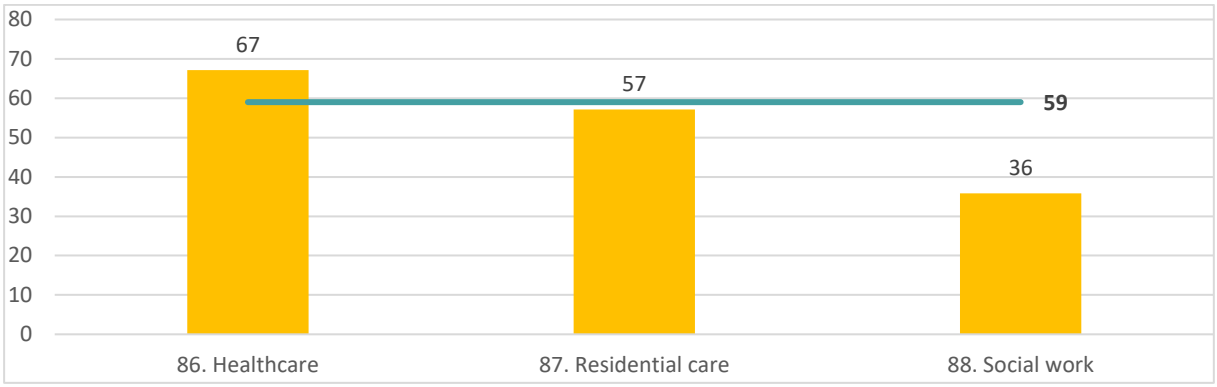
Figure 62: Percentage of workers sometimes/often/always exposed at work to biological risks, by sector, EU-27, 2021 (%)



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

HeSCare workers in general are exposed to a number of infectious diseases derived from contagion or infections (direct or indirect) while performing their daily tasks from contact with bodily fluids of the patients or proximity to sick persons or service users (EU-OSHA, 2022a; EU-OSHA, 2014). **Healthcare workers and residential care workers are more often exposed to biological risks**, compared to workers in the social work subsector, as shown in Figure 63.

Figure 63: Percentage of HeSCare workers sometimes/often/always exposed at work to biological risks, by subsector, EU-27, 2021 (%)



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

Healthcare workers are also in danger of direct or indirectly transmitted infections (EU-OSHA, 2014). Breaching of a worker's skin, due to contact with a sharp object or a bite, creates the risk of **bloodborne infections** (direct infections), such as HIV or hepatitis B (EU-OSHA, 2019a). The most common injuries are caused by needlestick, which might occur during procedures such as intramuscular or subcutaneous injections (22%), taking blood samples (20%) or replacing the cap on already used needle (30%) (EU-OSHA, 2019a). Mismanagement of medical waste or errors in reusing disposable objects such as needles or drainage bags can be frequent, due to lack of regulations, routines, sufficient (supply of) equipment, knowledge, education and supervision increases risks of exposure to pathogenic microbes (EU-OSHA, 2014). **Directive 2010/32/EU** addresses the **prevention of sharp injuries in the hospital and healthcare subsector.** Healthcare workers are not the only ones exposed to the risk, rather anyone who comes into contact with needles or medical sharp contaminated with blood or other body fluids (EU-OSHA, 2012a). Illnesses stemming from bloodborne pathogens can lead to severe health conditions and in some cases, even death (EU-OSHA, 2012a). Workers in the HeSCare sector benefit from this directive as it obliges employers to implement safe work practices, including using safety-engineered devices and disposing of sharp objects safely. Employers are also obliged to provide employees with appropriate training for the safe use of sharp objects. Employees on the other hand have the legal obligation to implement safety measures to prevent such injuries, through risk assessment the provision of safety-engineering devices and training.

While dealing with a patient who sneezes and coughs, all HeSCare workers are also in danger of **airborne infections** (indirect infections), such as influenza or rubella (EU-OSHA, 2019a). The risk of increased contamination of a disease is associated with low staffing levels in residential facilities, which was especially impacted during the COVID-19 pandemic, with potential reduced compliance with infection control measures in the case of excessive workloads and lack of monitoring and supervision (UNI Global Union, 2020). The outbreak of the COVID-19 pandemic resulted in overcrowding of hospitals all over the world and also increased the biological risks associated with treating the patients with this contagious virus (Eurofound, 2023a). It demonstrated the organisational and structural weaknesses of the HeSCare sector (Eurofound, 2023a). Many workers in the sector lacked personal protection equipment (PPE) caused by underfunding of the sector (and lack of supply due to high demand in the early phase of the pandemic) (Eurofound, 2023a). Additionally, the growing demand for social care shed the light on poor working conditions and staff shortages, which are long-lasting problems of the sector (Eurofound, 2023a). The exposure to biological risks also increased substantially due to lack of availability of PPE, in particular in nursing homes (UNI Global Union, 2020). Directive 89/656/EEC regulating the use of PPE holds significant relevance for the HeSCare sector. Workers should receive proper training on how PPE is used correctly, with instructions on how to safely remove and dispose of the gear, and that they also have the duty to use it for their own safety. It places an obligation on employers to assess risks and provide suitable PPE to employees. For instance, during the COVID-19 pandemic, healthcare personnel needed to be aware of how long and how they could make use of respiratory protective equipment (Ruskin et al. 2021). A lack of adequate procedures

concerning isolation of ill patients, which also became evident on the level of single residential homes during the pandemic, increased the risk of infection among residential care workers (UNI Global Union, 2020). During the COVID-19 pandemic, residential care workers were experienced a high risk of infection, with the number of deaths higher than in any other occupational group (Eurofound, 2023a).

Healthcare workers who provide healthcare services for refugees and migrants from non-vaccinated parts of the world, can be exposed to viruses and bacteria which are rarely seen nowadays in Europe (for example tuberculosis) (EU-OSHA, 2019a). Even though vaccination levels are high among healthcare workers it is important to ensure that all employees of the sector are vaccinated to decrease the risks of contagious diseases to these frontline workers (EU-OSHA, 2019a). As an example, for Hepatitis B (HBV), a study published in 2020 showed that an HBV vaccination was mandatory for medical and nursing staff in 10 EU countries; for other paramedical staff, medical and nursing students in 9 EU countries; for paramedical students in 8 EU countries; for cleaning staff in 7 EU countries; and for technical staff in 5 EU countries (De Schryver et al, 2020). It must be highlighted also that vaccinations are not available for all types of disease.

Home-based long-term carers are vulnerable to exposure of infections in providing care directly in recipients' homes. They might be obliged to work in unsanitary conditions, for example without sufficient PPE (EU-OSHA, 2014). This may lead to a cross-contamination of various diseases from inanimate objects or to contact with various pests such as lice or scabies (EU-OSHA, 2014). Direct handling of patients' personal belongings, especially during laundry contributes to a higher risk of the spread of Staphylococcus aureus (EU-OSHA, 2014).

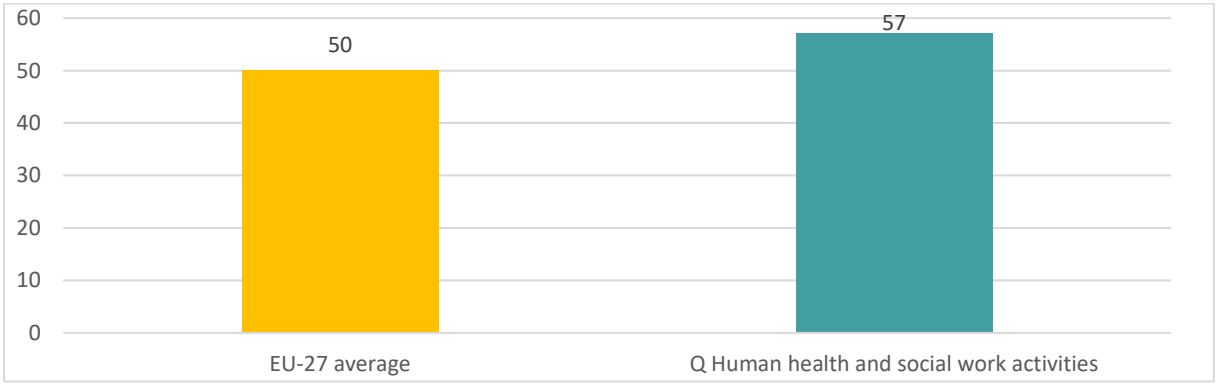
3.1.5 Organisational risk factors

Organisational risks as indicated by data from ESENER, reveal that such risks are reported more frequently in establishments in the HeSCare sector, compared with others (EU-OSHA, 2022a). This section provides data on some of the key organisational risks factors affecting the HeSCare sector.

- **Work autonomy**

Work autonomy refers to the level of independence and freedom employees have in making decisions about their work. It involves the degree to which individuals can control and manage their own tasks, schedules and methods of work within the broader organisational framework. Autonomy is often considered a key factor in job satisfaction and employee well-being. In the **HeSCare sector workers score a lower task autonomy than the average EU worker**, based on figures from EWCTS-2021 (Figure 64).

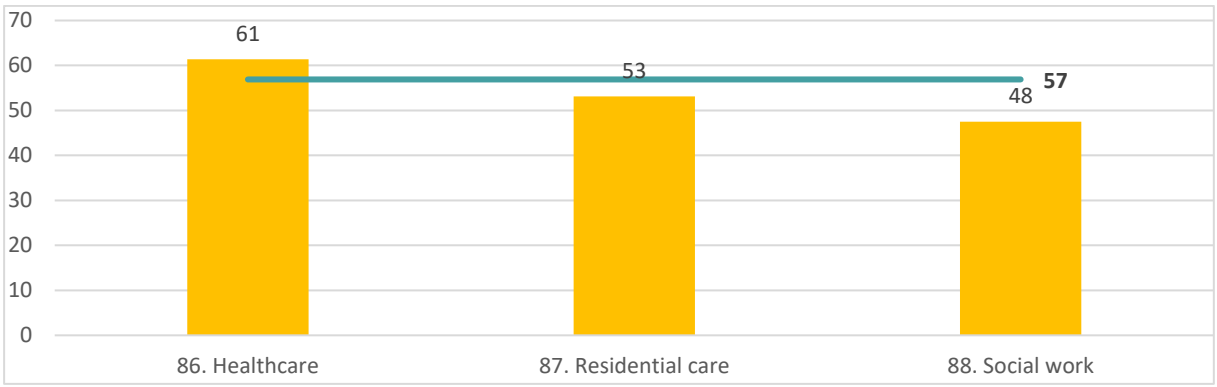
Figure 64: Percentage of workers on low task autonomy*, by sector, EU-27, 2021 (%)



Source: TNO based on the EWCTS-2021
Base: All workers in the EU-27.
(*) Never/rarely/sometimes yourself on 'order of tasks'; 'methods'; 'speed or rate of work'.

This lower score comes mostly from the healthcare subsector. In both the residential care and social work subsectors, workers score a higher task autonomy than the average EU worker, as shown in Figure 65.

Figure 65: Mean scores of HeSCare workers on low task autonomy*, by subsector, EU-27, 2021 (%)



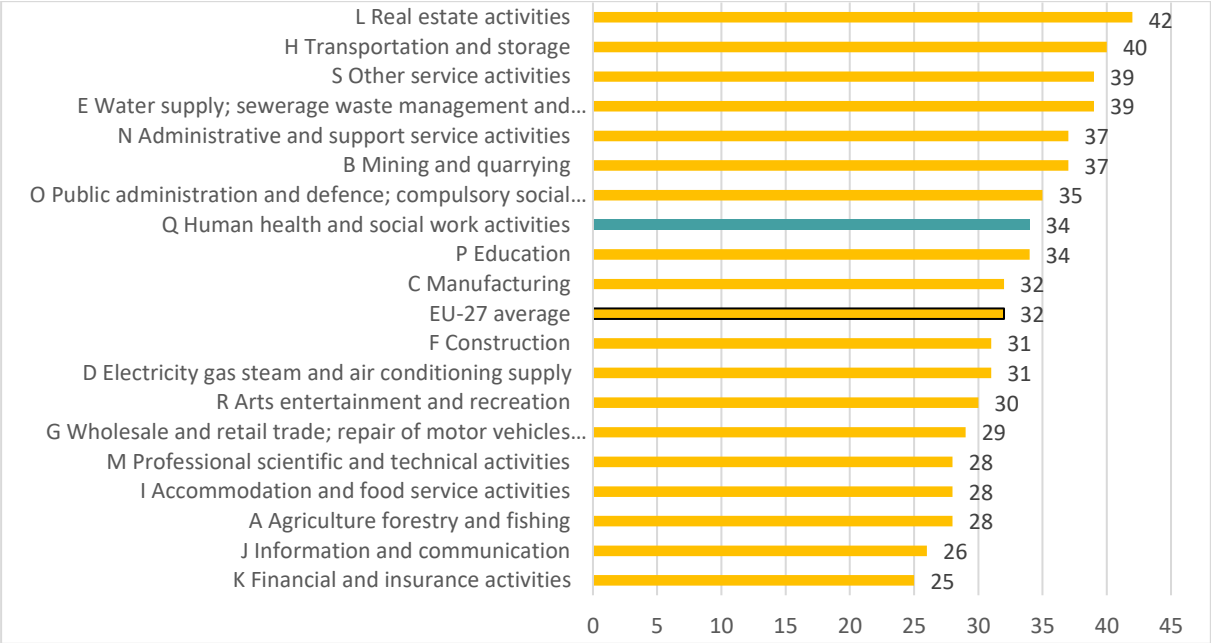
Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27.
(*) Deciding never/rarely/sometimes yourself on 'order of tasks'; 'methods'; 'speed or rate of work'.Dichotomised 3-item scale.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

A Norwegian study identified several reasons for low job autonomy in the HeSCare sector (Øygarden, Olsen & Mikkelsen, 2020). Firstly, the traditional central organisation of the decision-making process which prevails in the healthcare subsector influences the experience of job autonomy. Secondly, the healthcare subsector is going through constant changes to ensure quality, efficiency and effectiveness of healthcare services based on the principles of New Public Management. Accordingly, management and leadership are centralised and directed towards implementing those changes targeting resources efficiency and cutting costs, which is adversely affecting well-being of the workers, by increasing the job demands (Øygarden, Olsen & Mikkelsen, 2020). This interaction between high job demand and low autonomy is very characteristic for the healthcare subsector (van Dorssen-Boog et al. 2020). Unfortunately, **the lack of job autonomy is proven to negatively influence the well-being of workers in the HeSCare sector.** High job autonomy and decision latitude increase motivation. Among HeSCare professions, nurses, or home care workers with high job autonomy are able to solve everyday problems in their work and improve their performance based on the feedback provided by colleagues (van Dorssen-Boog et al. 2020).

- **Social support**

Social support refers to the assistance, encouragement, and comfort that individuals receive from their social networks, including colleagues and supervisors. In the context of OSH, social support is crucial for fostering a positive and healthy environment. It can take various forms, such as emotional support, instrumental support (tangible aid), informational support (providing advice or information) and appraisal support (positive feedback). **In the HeSCare sector, workers experience lack of social support from colleagues, peers and managers when compared with the average in the EU** (Figure 66). This can be explained by understaffing that causes workload and high work pace that erupt social interactions and support at work (EU OSHA 2023b).

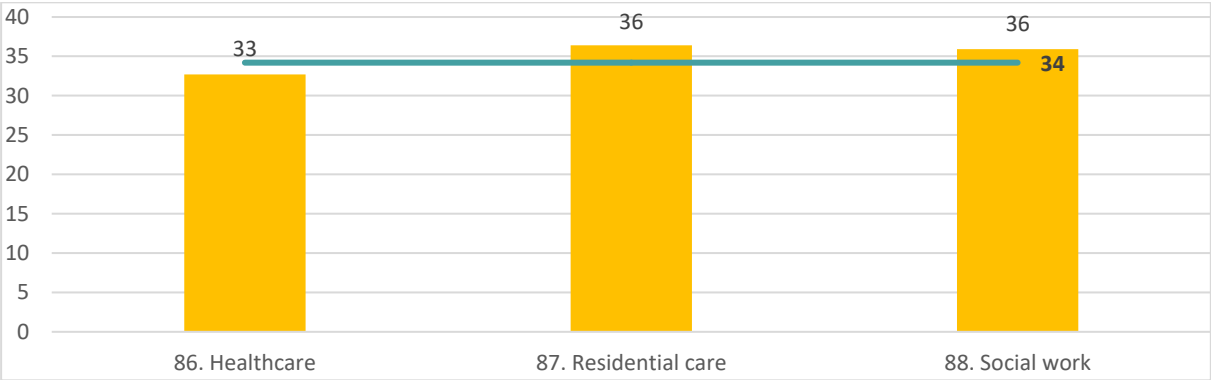
Figure 66: Mean scores of workers with low social support, by sector, EU-27, 2021 (%)



Source: TNO based on the EWCTS-2021
Base: All workers in the EU-27.
(*) 'Colleagues', 'peers', 'manager' never/rarely/sometimes 'help and support'. Dichotomised 3-item scale.

The **lack of social support is especially prevalent among workers in residential care and social work subsectors**, where the mean scores of employees indicate support below the HeSCare average (as shown in Figure 67).

Figure 67: Mean scores of HeSCare sector workers with low social support, by subsector, EU-27, 2021 (%)



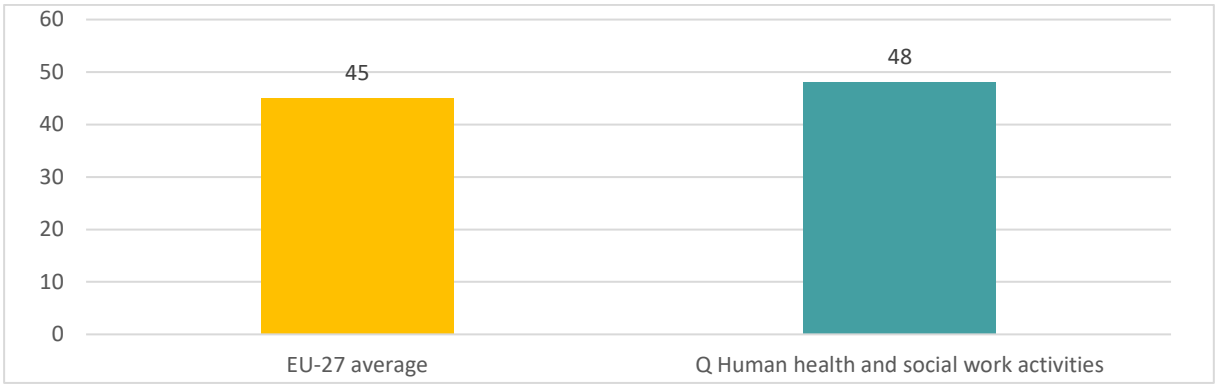
Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27.
(*) 'Colleagues', 'peers', 'manager' never/rarely/sometimes 'help and support'. Dichotomised 3-item scale.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

- **Organisational participation**

Organisational participation refers to the involvement and engagement of employees in decision-making processes, policies and activities within the workplace. It involves giving employees a voice in matters that affect their work environment, such as safety protocols, procedures and overall organisational policies. This participation can take various forms, including input into decision-making, representation on safety committees, and involvement in the development and implementation of OSH programs. Data from the EWCTS 2021 show that **in the healthcare and residential subsectors the organisational**

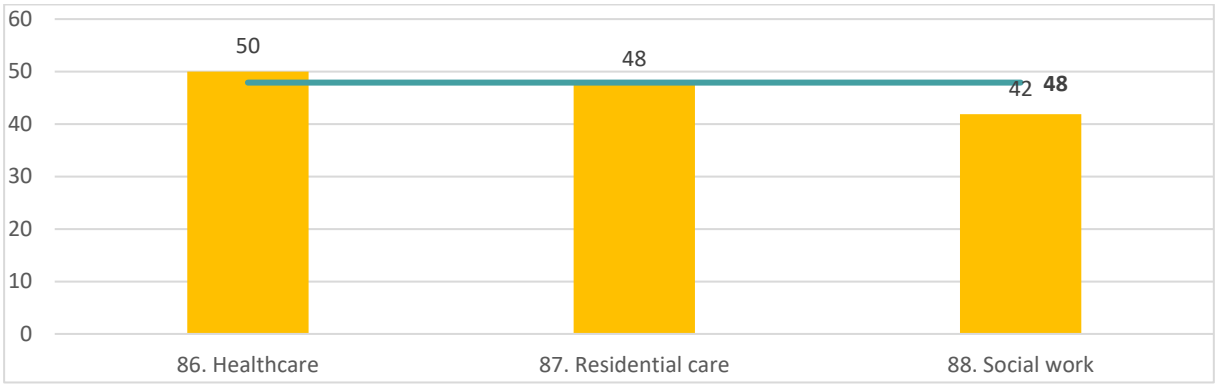
participation is lower than the EU-27 average across all sectors (Figure 68). In social work, the score is just under the EU-27 average across all sectors, indicating better organisational participation, as shown in Figure 69. More formal forms of worker participation are referred to in ESENER and these results are discussed in Chapter 6.

Figure 68: Mean scores of workers with low organisational participation*, by sector, EU-27, 2021 (%)



Source: TNO based on the EWCTS-2021
Base: All workers in the EU-27.
(*) Never/rarely/sometimes 'can influence decisions'; 'consulted about objectives'; 'involved in improving work organisation/processes'. Dichotomised 3-item scale.

Figure 69: Mean scores of HeSCare sector workers with low organisational participation*, by subsector, EU-27, 2021 (*)



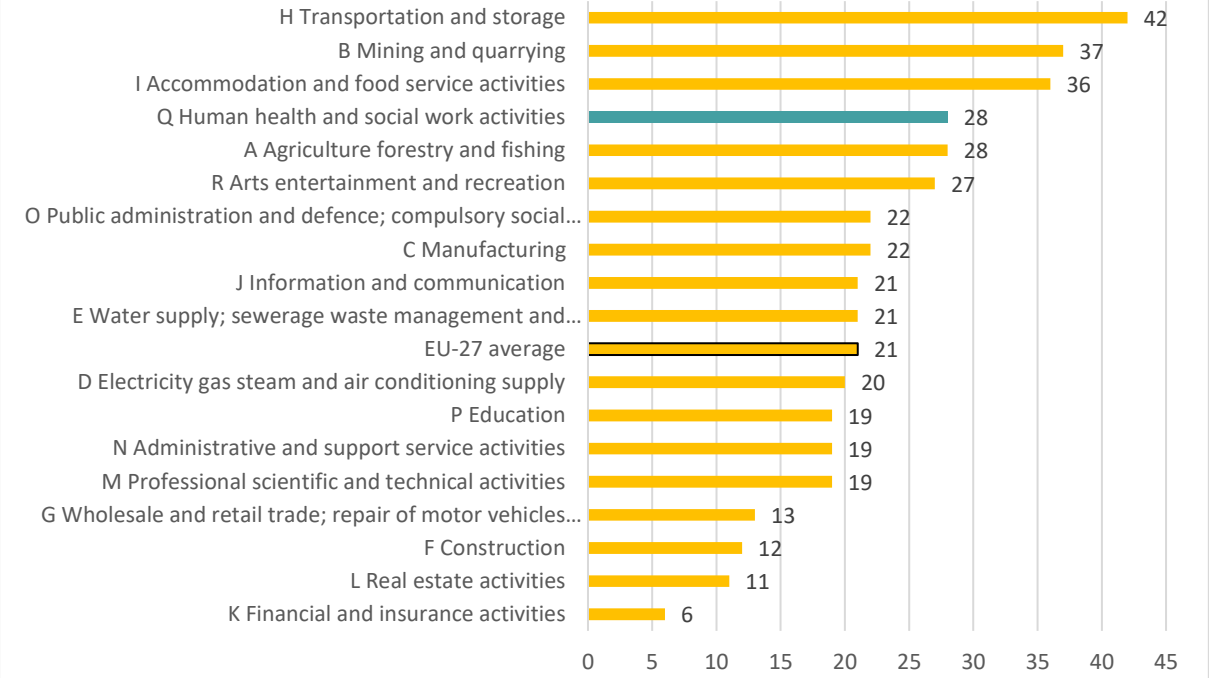
Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.
(*) Never/rarely/sometimes 'can influence decisions'; 'consulted about objectives'; 'involved in improving work organisation/processes'. Dichotomised 3-item scale.

- **Night work and irregular working times**

Night work and shift work involving overnight hours represent irregular working times that is an implicit part of HeSCare services and that can include 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 belonged to the healthcare subsector, with a particular emphasis on nursing, according to a study conducted mid-2023 (Silva & Costa, 2023). Making the most of expensive/rare machines (e.g., MRI scans, robot surgeons) may also generate 24-hour staffing needs. Also, residential care workers are 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, as shown in Figure 70.

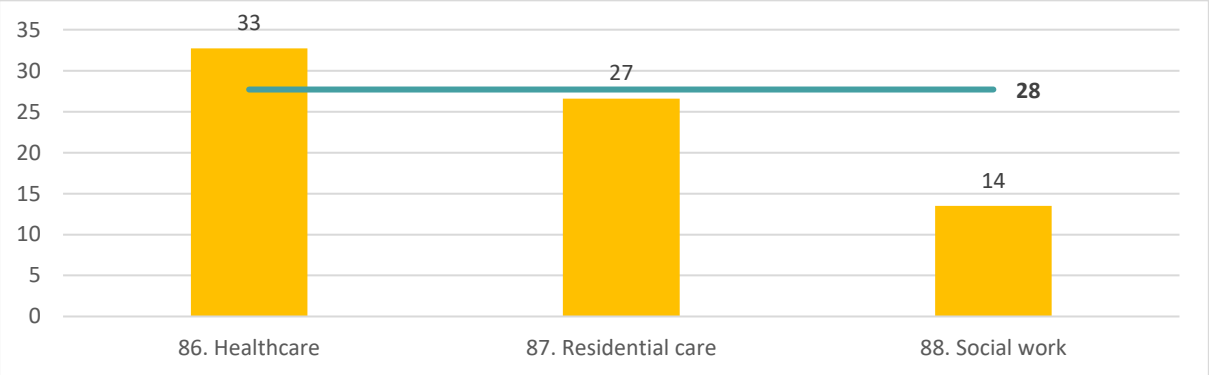
Figure 70: Percentage of workers working sometimes/often/always at night, by sector, EU-27, 2021 (%)



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

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 (Figure 71). 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.

Figure 71: Percentage of HeSCare sector workers working sometimes/often/always at night, by subsector, EU-27, 2021 (%)

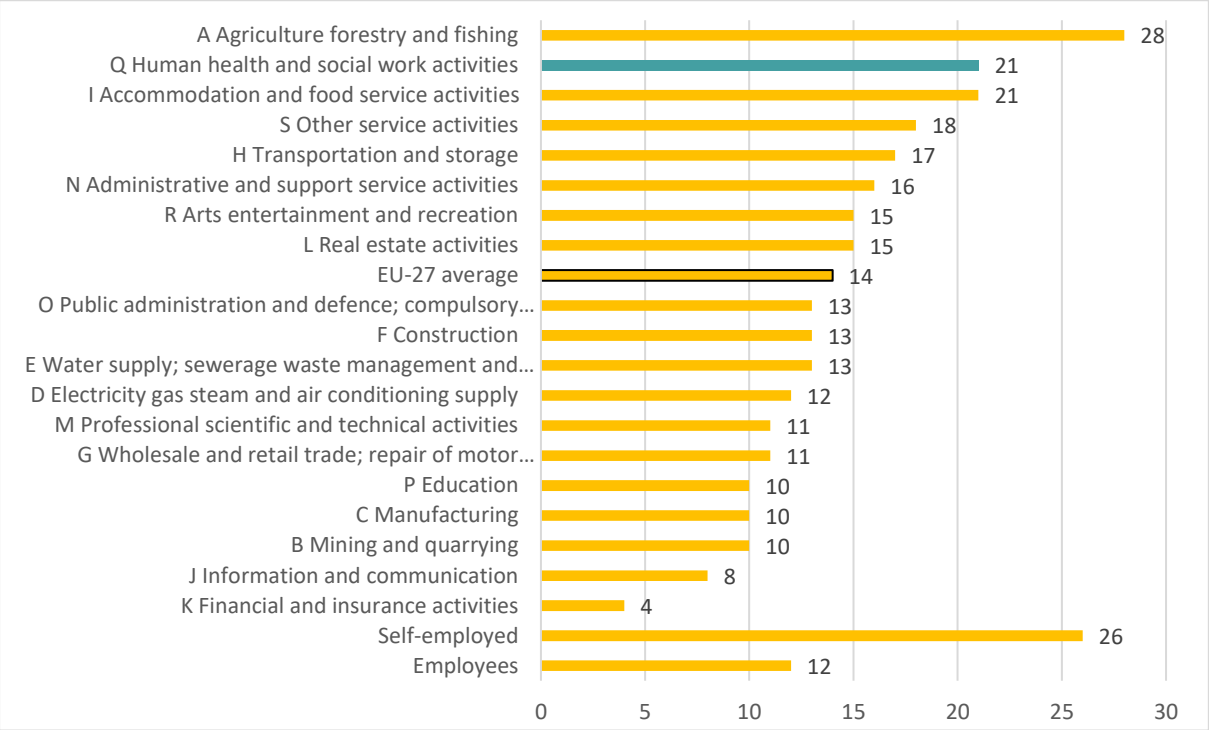


Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27 .
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

Working on short notice which involves asking employees to work with little advance notice is more common in the HeSCare sector than in others. This can introduce OSH risks, such as fatigue and sleep disruption, stress, disturbed work-life balance and reduced preparedness for the job to be

performed. 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 EU-27 (Figure 72). Analyses show no significant difference in exposure rates based on subsector in HeSCare.

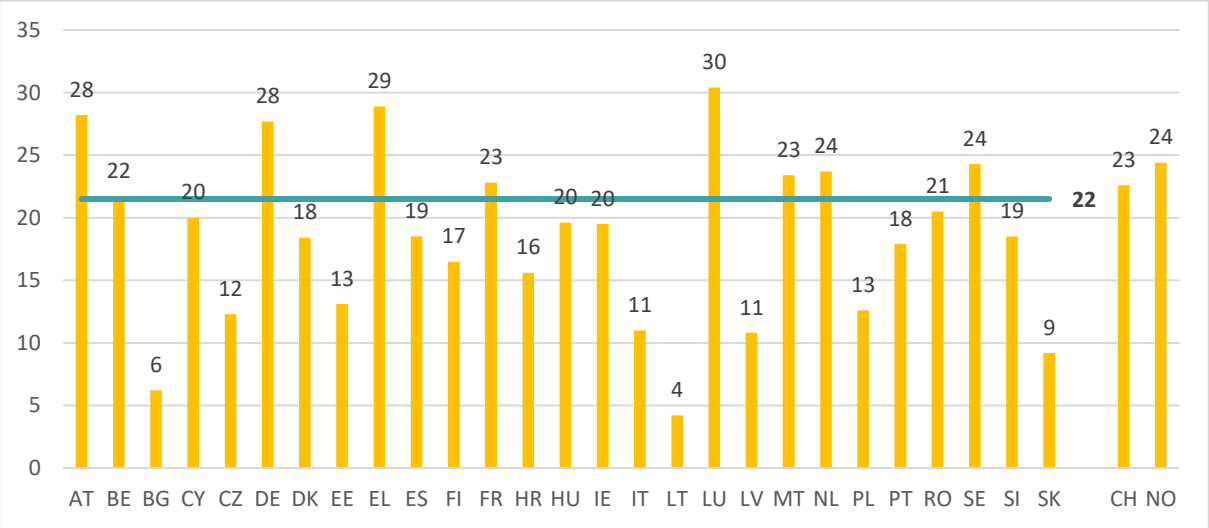
Figure 72: Percentage of workers working several times a month/a week/daily at short notice over the last 12 months, by sector, EU-27, 2021 (%)



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

Notably, **the share of HeSCare workers being requested to work on short notice differs greatly between countries**. For example, employees in Germany are much more likely to work on short notice (28%) than employees in Bulgaria (6%), as shown in Figure 73.

Figure 73: Percentage of HeSCare sector workers working several times a month/a week/daily at short notice over the last 12 months, by country, EU-27 (+ CH and NO), 2021 (%)

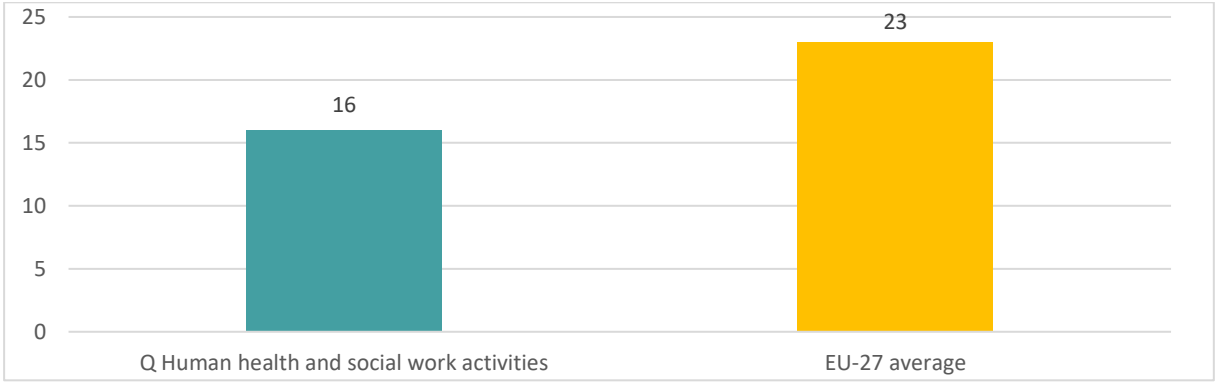


Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27, Switzerland and Norway.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

- **Job insecurity**

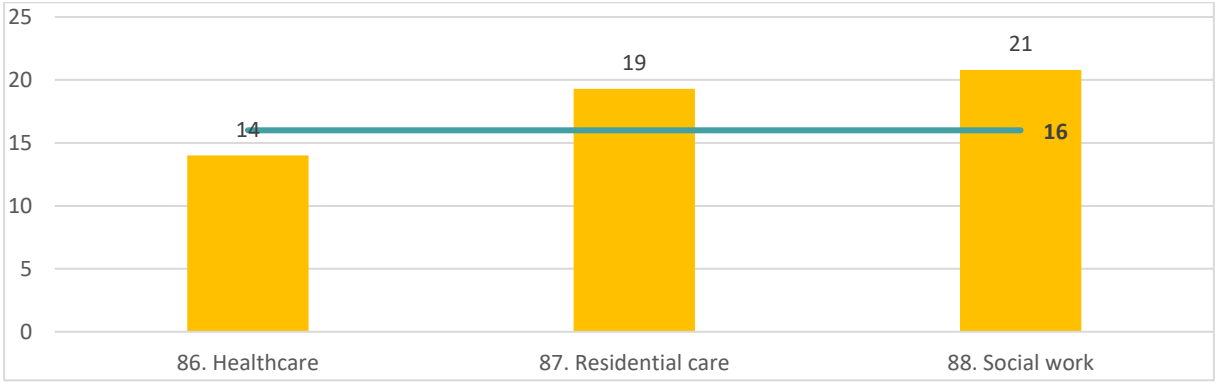
Job insecurity is regarded as the 'overall concern about the continued existence of the job in the future' (Sverke, M., & Hellgren, J., 2002). Exposure to job insecurity has been associated with a number of negative health outcomes, particularly mental health (Burgard, S.A., Brand, J.E., & House, J.S., 2009). **Compared to all other NACE sectors**, **a substantially smaller part of the workforce in the HeSCare sector experiences job insecurity** (Figure 74). Within the three subsectors, there are some differences. The lowest level of exposure to job insecurity is found in healthcare, whereas higher levels of exposure are found in both residential care as well as social work (Figure 75). It must be noted that for all subsectors, scores are lower than the EU-27 average across all sectors. This could be explained by staff shortages in the sector.

Figure 74: Percentage of workers at risk of job loss*, by sector, EU-27, 2021 (%)



Source: TNO based on the EWCTS-2021
Base: All workers in the EU-27.
(*) Strongly/tend to agree/neither agree nor disagree 'I might lose my job in the next 6 months'.

Figure 75: Percentage of HeSCare sector workers at risk of job loss, by subsector, EU-27, 2021 (%)



Source: TNO based on the EWCTS-2021
Base: All HeScare workers in the EU-27.
(*) Strongly/tend to agree/neither agree nor disagree 'I might lose my job in the next 6 months'.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

3.1.6 Evolution of risks over time

This section analyses the evolution of OSH related risks over time, by comparing data between the ESENER-14 and ESENER-19 surveys. Of the 8 general OSH risk factors that were measured in both ESENER surveys, the most pronounced increase is seen in the occurrence of repetitive hand or arm movements: 15 percentage points, from 51% to 66%. Out of all risk factors, the occurrence of repetitive hand or arm movements is most likely to indicate attention given to general OSH management, which can be seen in all three subsectors of the HeSCare sector.

The presence of time pressure in an establishment is the factor that is most likely to indicate attention given to psychosocial OSH management. This risk factor has also become more common in the HeSCare sector, increasing from 51% to 58% between 2014 and 2019. This risk factor is more common in the HeSCare sector than in many other sectors. Of establishments in the total economy, 45% reported time pressure as a risk factor in 2019. Developments in the occurrence of all risk factors are shown in Table 10.

Table 10: Percentage of HeSCare sector establishments reporting presence of general and psychosocial risk factors, EU-27, ESENER-2014 and ESENER-19 (%)

	2014	2019
OSH risk factors:		
..lifting or moving people or heavy loads *	54	57
..repetitive hand or arm movements *	51	66
..loud noise	22	22
..heat, cold or draught	25	23
..risk of accidents with machines	33	30
..risk of accidents with vehicles in the course of work	38	39
..chemical or biological substances	49	47
..increased risk of slips, trips, and falls	26	30
Psychosocial risk factors:		
..time pressure *	51	58
..poor communication or cooperation *	22	27
..job insecurity *	19	13
..difficult customers *	78	83
..long or irregular working hours *	28	31

Source: Panteia based on ESENER-2014 and ESENER-2019
* Difference between 2014 and 2019 is statistically significant at the 0.05 level.

3.2 Health and safety outcomes in the HeSCare sector

The exposure of HeSCare sector workers to OSH risks result in a series of health outcomes. These outcomes often differ due to the broad nature of the sector, and the variety of activities and situations per subsector. Data from various surveys provide information regarding health outcomes of workers. As seen in section 3.1, MSK and psychosocial risks are the most prevalent in the HeSCare sector, so therefore this chapter places some focus on MSDs and the prevalence of stress and mental health issues. Additionally, this data (as well as previous information regarding the main OSH risks) can be complemented with data stemming from the European Statistics on Accidents at Work (ESAW) elaborated by Eurostat, which allows the quantification of the impacts of these OSH-related risks in terms of accidents at work.

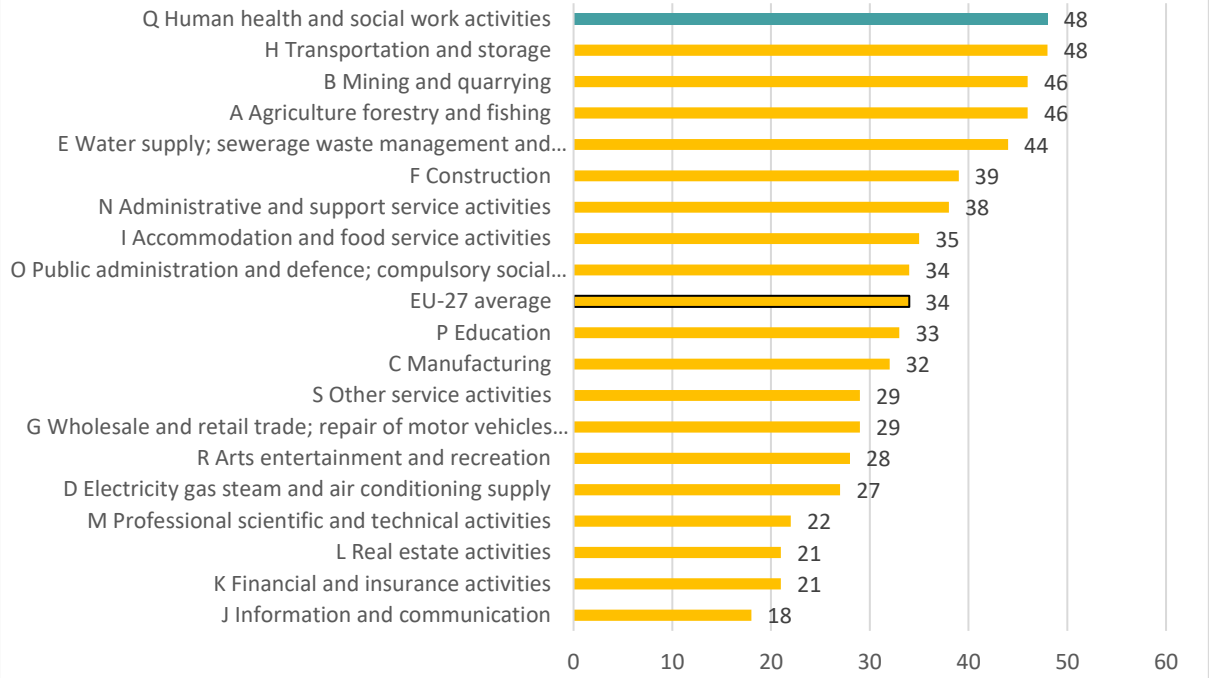
3.2.1 Work-related health and safety problems

- **Work related health problems**

Compared to other sectors, **workers in the HeSCare sector are more likely to report that their health is at risk due to their work** (Figure 76). Although differences between EU Member States are quite large, it is seen that almost half of the workers report their health or safety is at risk because of their work (Figure 77). When looking into the three subsectors, **the share of workers who reported that their health and safety was at risk because of work was highest in the healthcare subsector** (52%), followed by the residential care subsector (47%) and the social work subsector (37%) (Figure 78). It

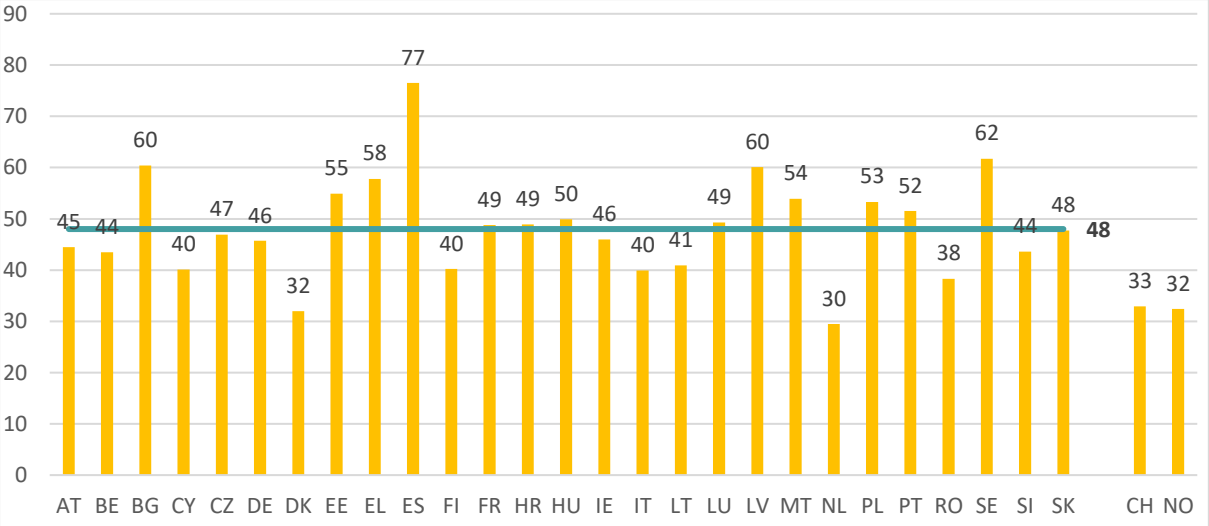
must be noted that this indicator only refers to workers' safety and health being at risk, it is not (yet) prevalence of health problems.

Figure 76: Percentage of workers reporting that their health or safety is at risk because of work, by sector, EU-27, 2021 (%)



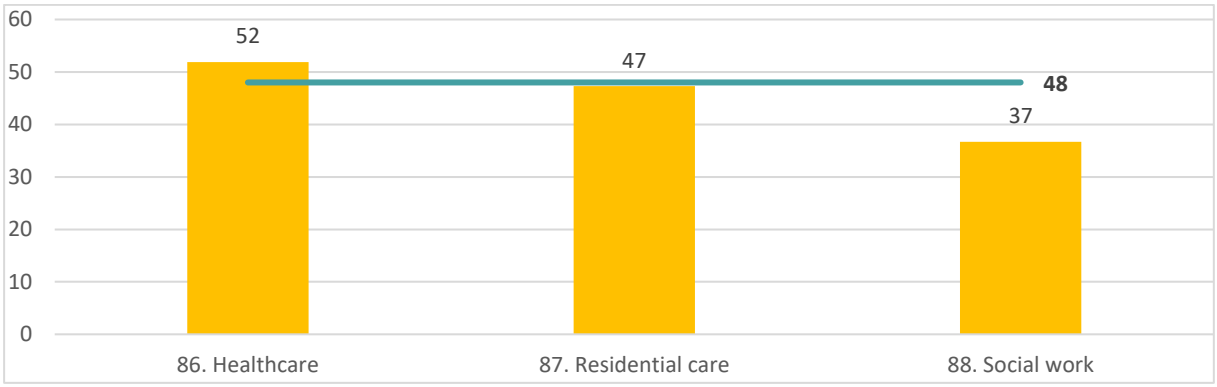
Source: TNO based on the EWCTS-2021
Base: All workers in the EU-27.

Figure 77: Percentage of HeSCare sector workers reporting that their health or safety is at risk because of work, by country, EU-27 (+ CH and NO), 2021 (%)



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

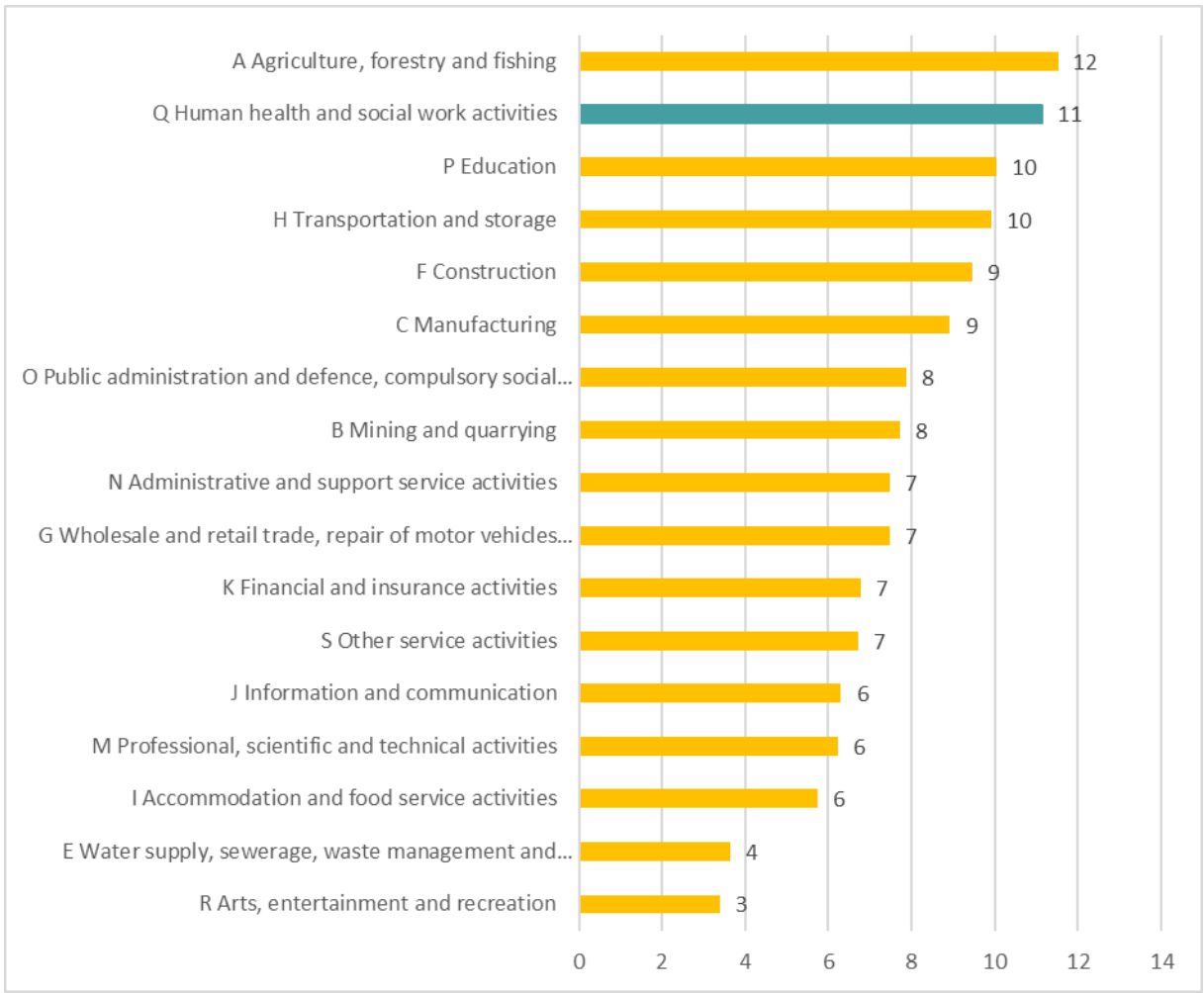
Figure 78: Percentage of HeSCare sector workers reporting that health or safety is at risk because of work, by subsector, EU-27, 2021 (%)



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

Data from the LFS show that the highest percentage of total employees reporting a work-related health problem are found in the Agriculture, Forestry and Fishing sector (NACE code Q), followed by the HeSCare sector (11% of employees) (Figure 79).

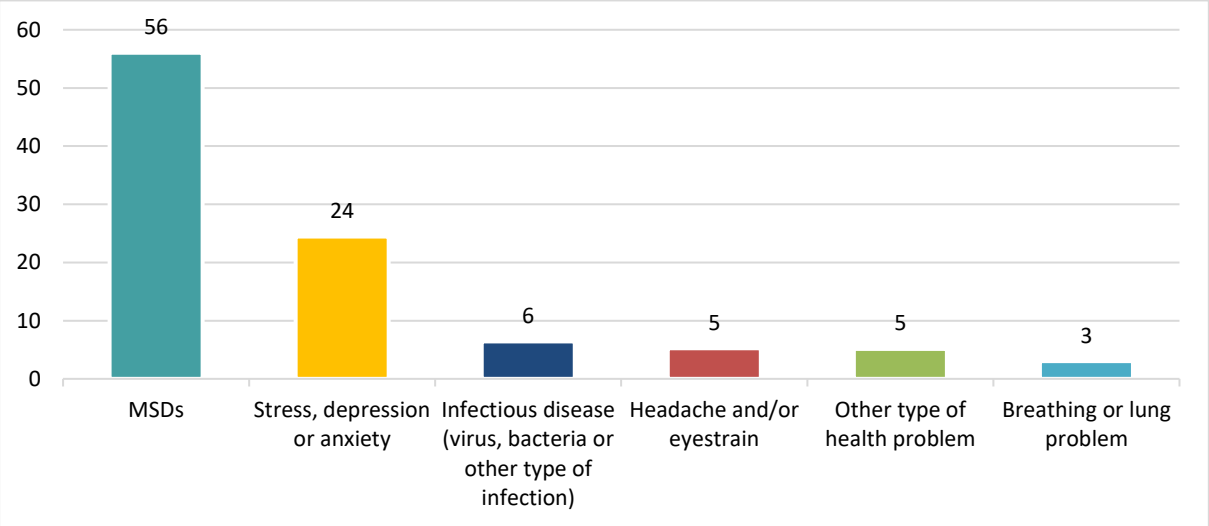
Figure 79: Persons reporting a work-related health problem, by sector, EU-27, 2020 (%)



Source: EU Labour Force Survey, 2020
Base: % of total employed, age group 15-64.

Of these reported health problems, Figure 80 shows that 80% consist of MSDs and mental health problems: **more than half of the reported problems consists of MSDs and about a quarter of the reported problems can be described as a mental health problem**. This may not come as a surprise since both musculoskeletal risks as well as psychosocial risks are considered as the most common risks in the sector (see Section 3.1).

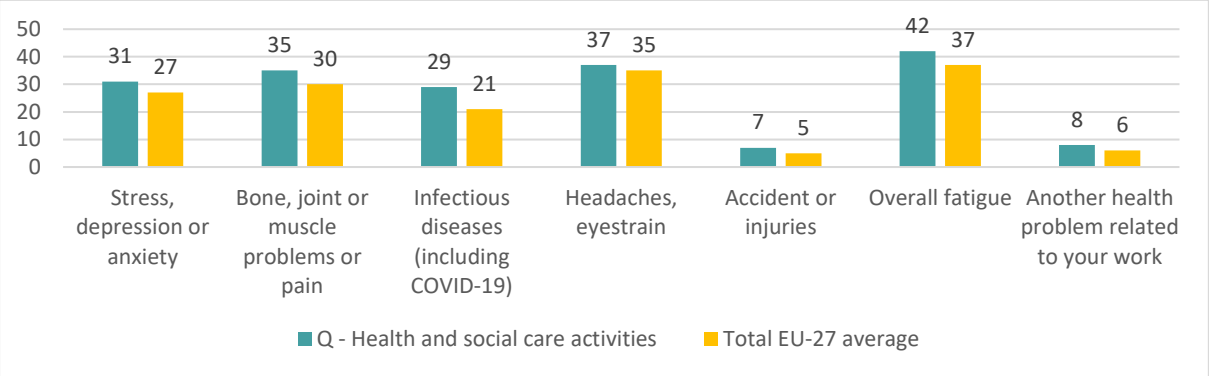
Figure 80: Persons reporting a work-related health problem by type of problem in the HeSCare sector, EU-27, 2020 (%)



Source: EU Labour Force Survey, 2020
Base: % of total employed in the HeSCare setor, age group 15-64.

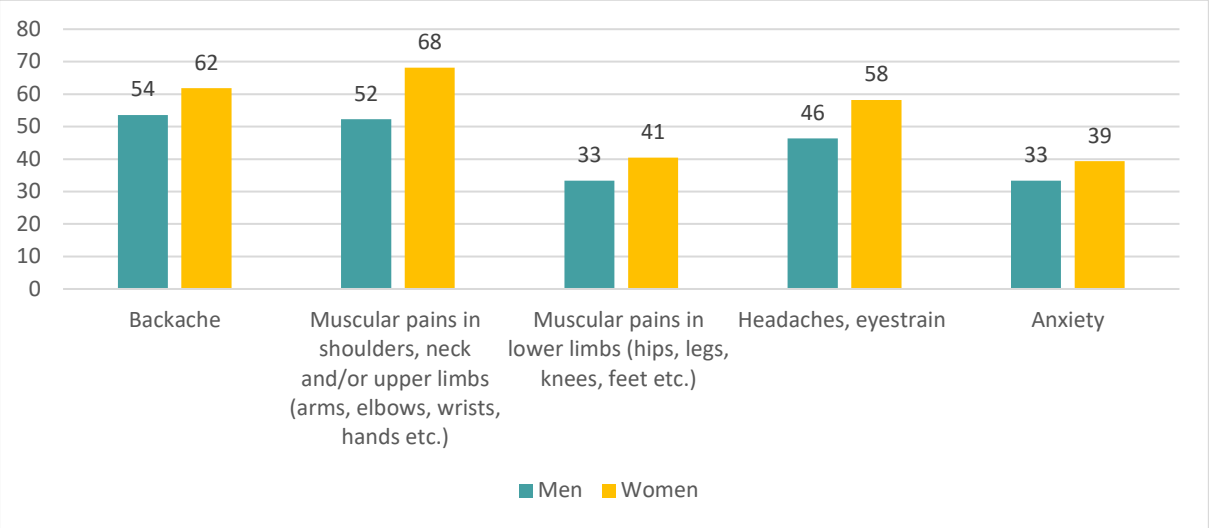
Data from the OSH Pulse 2022 Survey show a similar pattern to the data from the 2020 LFS: for all health problems caused or made worse by work in the past 12 months, **workers in the HeSCare sector report those problems more often in comparison with the EU-27 average across all sectors** (Figure 81). When analysing gender differences, **women report health problems more often than their male co-workers**, as shown in Figure 82).

Figure 81: Percentage of workers indicating health problems caused or made worse by work in the past 12 months, by sector, EU-27, 2022 (% indicating yes)



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

Figure 82: Percentage of HeSCare sector workers reporting health problems over the last 12 months, by gender, EU-27, 2021 (% indicating yes)



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

At the subsector level, data from the EWCTS-2021 show that workers in the healthcare subsector are the most likely to report backache and muscular pains in the upper limbs (Table 11). Workers in the social work subsector were the most likely to report experiencing anxiety and headaches or eyestrain.

Table 11: Percentage of HeSCare sector workers reporting health problems over the last 12 months, by subsector, EU-27, 2021 (% indicating yes)

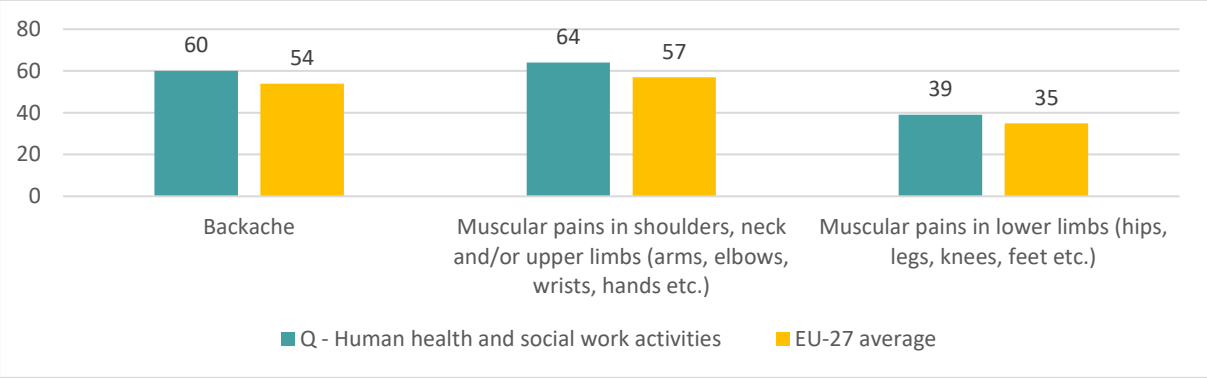
	Backache	Muscular pain upper limbs	Muscular pain lower limbs	Headaches, eyestrain	Anxiety
Healthcare	61	69	37	56	36
Residential care	60	66	41	52	40
Social work	56	64	41	58	42
Total HeSCare sector	60	64	39	55	38

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

- **Musculoskeletal disorders**

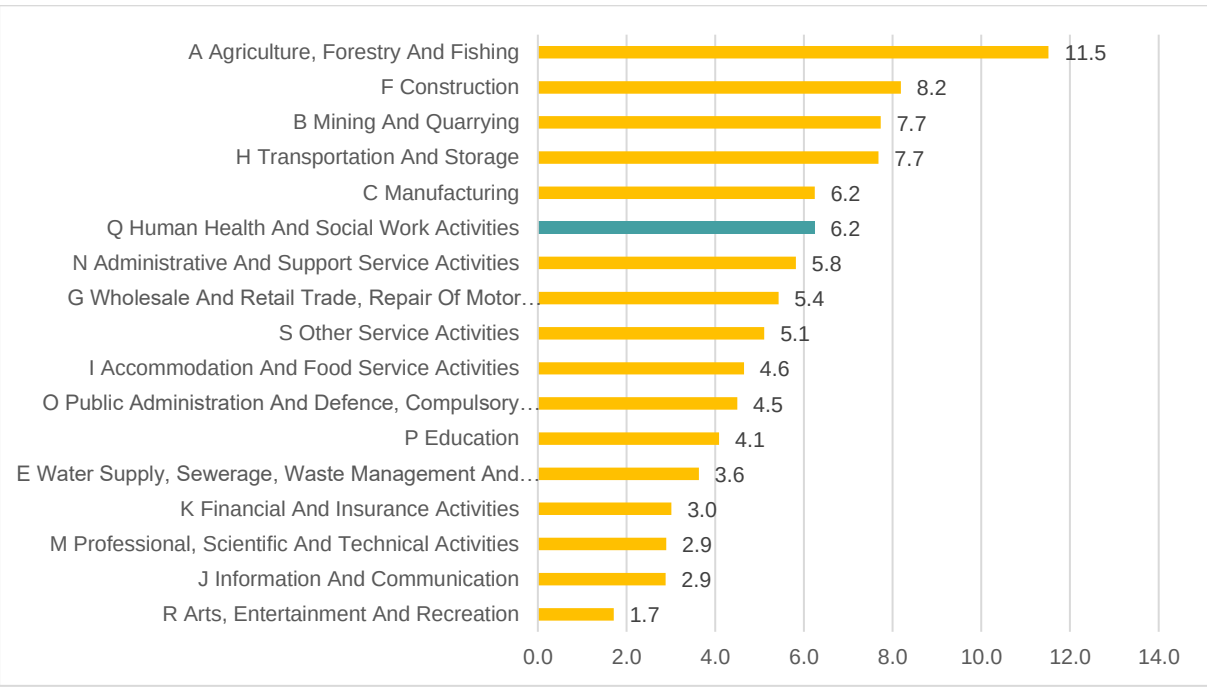
Workers in the HeSCare sector suffer from MSDs more often than the workers in any other sector. According to data from 2020, 46% of workers experienced lower-back pain and 47% experienced upper-limb pain in the past 12 months. (EU-OSHA, 2020c). More recent data from the 2021 EWCTS show these percentages are even higher (see Figure 83). HeSCare workers experience more back pain, as well as muscular pains in both 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. Additional data from the 2020 LFS show a similar picture. The prevalence of (self-reported) work-related MSDs is quite high in the sector (Figure 84).

Figure 83: Percentage of workers reporting health problems over the last 12 months, by sector, EU-27, 2021 (% indicating yes)



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

Figure 84: Persons reporting a work-related MSD problem, by sector that recorded more than 50.000 cases, EU-27, 2020 (%)



Source: EU Labour Force Survey, 2020
Base: % of total employed, age group 15-64.

MSDs can lead to the loss of work ability, sickness absenteeism and permanent disability. Therefore, MSDs constitute a great personal risk for workers, as well as high costs for workplaces and society (EU-OSHA, 2020c). Even though some MSDs are very specific like osteoarthritis, disc herniation or carpal tunnel syndrome, most of them originate from general injuries, such as a lower-back pain (EU-OSHA, 2014).

MSDs are a direct consequence of demanding physical work, however the scale of the problem, especially in the healthcare subsector, is also influenced by psychosocial risk factors (EU-OSHA, 2020c). The growing number of workers suffering from MSDs is the result of various factors including ageing of the workforce and an increase in the workload (EU-OSHA, 2020c). High workload, time pressure, long and irregular working hours are all increasing the risks of MSDs (EU-OSHA, 2020c). Staff shortages are especially visible in the long-term care sector, as demographic changes result in an increase of the number of people who need such care (UNI Global Union, 2020). Due to the insufficient funding of this

sector and poor working conditions, workplace learning and education level, there are not sufficient (qualified) workers to meet the increase in patient/service receivers' influx, which results in high workload (UNI Global Union, 2020). Work task characteristics make long-term care workers (residential and non-residential) more vulnerable to the risks of MSDs and other MSK risks resulting from physical exertion (Eurofound, 2020a).

In the healthcare subsector, orderlies and nurses have the highest risk of disabling back injuries, because similarly to long-term care workers, they often carry patients manually, and due to increased obesity in society this becomes more challenging (EU-OSHA, 2020c). Lack of training and education and formal routines regarding safety at work and the lack of use of necessary equipment contributes to increasing the number of musculoskeletal injuries among HeSCare sector workers (EU-OSHA, 2014).

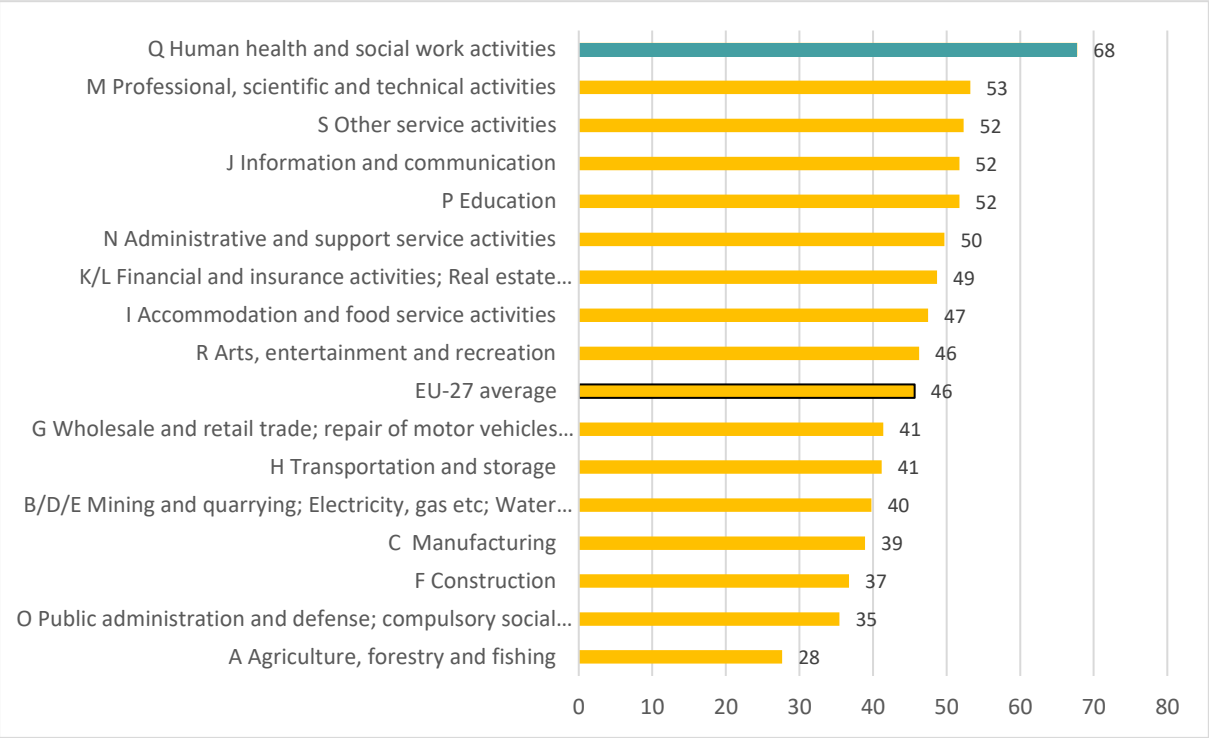
A specific group who has a high risk of developing MSDs are workers who provide home based care. They are the most likely to work without the necessary knowledge or equipment, especially adjustable beds, which are the standard in residential and hospital care, but scarce in patients' private homes (EU-OSHA, 2014).

Studies have shown that psychosocial risk factors such as high job demands (combined with low control), demanding work schedules, and rotating and irregular shifts can contribute to the development of MSDs (e.g., low back pain, shoulder pain, knee pain) in healthcare professionals (EU-OSHA, 2023c).

- **Stress / mental health issues**

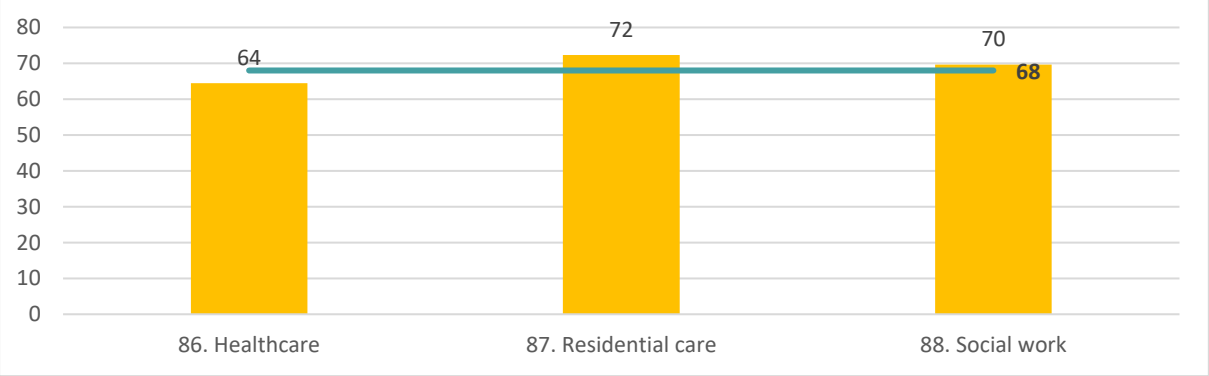
Exposure to psychosocial risk factors can lead to work stress and cause a variety of serious mental and physical health problems such as chronic fatigue, burnout, depression and cardiovascular diseases (Niedhammer et al. 2021). During the pandemic more than half of HeSCare workers indicated some type of exhaustion or risk of burnout (Eurofound 2023c). Stress, anxiety and depression make up the second most common work-related health problem affecting European workers (LFS). Data from the ESENER-19 survey clearly show that, **in comparison to other sectors, establishments in the HeSCare sector report higher levels of work-related stress** (Figure 85). The percentage of establishments indicating work related stress being identified is high in all three subsectors, with no significant differences (Figure 86).

Figure 85: Percentage of establishments indicating work-related stress being identified, by sector, EU-27, 2019 (%)



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

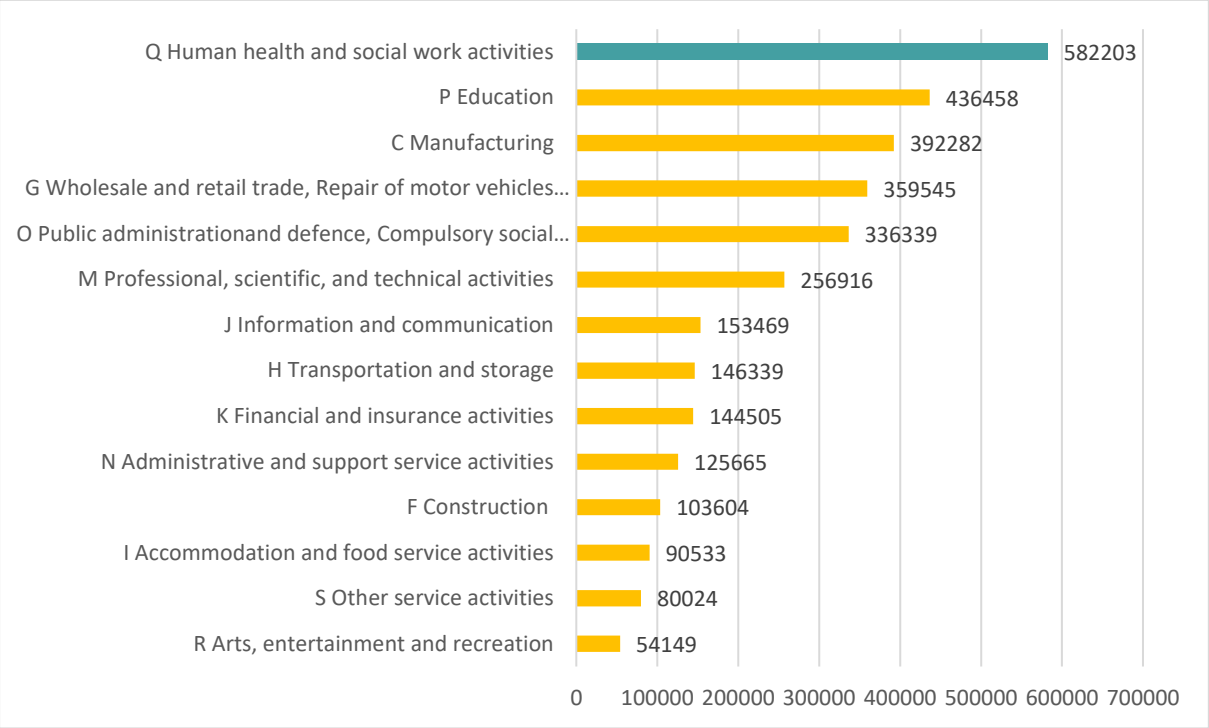
Figure 86: Percentage of HeSCare sector establishments indicating work related stress being identified, by sector, EU-27, 2019 (% indicating yes)



Source: Panteia based on ESENER-2019
Base: All HeSCare sector establishments in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

When analysing data at the individual level, data from the LFS show that 24% of the workers in the HeSCare sector experiences stress, depression, or anxiety. **Compared to other sectors, the level of people reporting a work-related stress, depression or anxiety is highest for the HeSCare sector** (Figure 87).

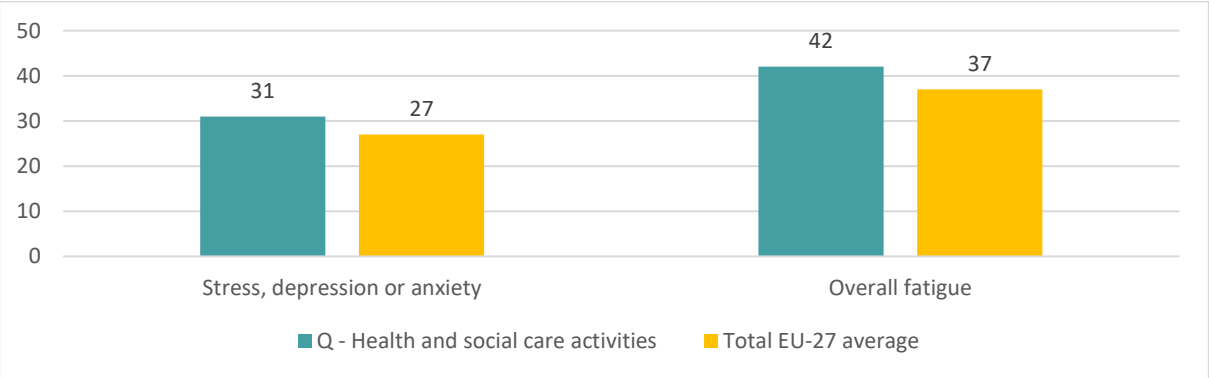
Figure 87: Number of persons reporting work-related stress, depression or anxiety, by sector, EU-27, 2020



Source: EU Labour Force Survey, 2020
Base: Employed, age group 15-64.

Similarly, the OSH Pulse 2022 Survey data show that 31% of respondents in the HeSCare sector reported having experienced work-related stress, depression, or anxiety in the last 12 months. Furthermore, in the OSH Pulse Survey, 41% of respondents in the HeSCare sector reported experiencing overall fatigue compared to a share of 37% for all sectors (Figure 88).

Figure 88: Percentage of workers indicating health problems caused or made worse by work in the past 12 months, by sector, EU-27, 2022 (% indicating yes)



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

Based on these analyses, workers in the HeSCare sector are at high risk of work-related mental issues because of their relatively high exposure to PSR (see chapter 3.1 as well):

- Exposure to high emotional demands is associated with an increased risk of depressive disorders (Madsen et al. 2022) and other mental health problems (Eurofound, 2022b).
- Workers generally experience stress when the demands of their job are excessive and greater an extent than their capacity to cope with them. High workload and/or time pressure can

contribute to the feeling of not being able to provide good care among nurses, that in turn can result in higher stress levels (Heikkilä et al. 2022).

- In addition, by providing care to patients, HeSCare professionals are likely to (indirectly or directly) be exposed to trauma, which can potentially lead to symptomatic responses of post-traumatic stress disorder (PTSD). Different groups of HeSCare professionals have been diagnosed with PTSD symptoms, including physicians, nurses, midwives, ambulance personnel and emergency physicians (Qian et al. 2022).

3.2.2 Accidents in the HeSCare sector

- **Fatal accidents**

The number of fatal accidents in the HeSCare sector increased slightly in the period between 2011 and 2019, while the total number of fatal accidents in all NACE sectors decreased in this period (see Table 12). ESAW data on fatal accidents show a clear peak (an increase of 250%) in the number of fatal accidents in 2020. This is concordant with the start of COVID-19 in Europe when vaccines were not developed yet. Occupational COVID-19 cases in 2020 were reported as accidents at work or cases of occupational disease[28], which explains the surge of fatal accidents. When looking at the subsector level, it becomes clear that the increase of fatal accidents across the entire HeSCare sector is mainly caused by an increase in the number of fatal accidents within the healthcare subsector, which can be explained by the contagion of COVID-19 and deaths among healthcare personnel registered as accidents. A spike in the incidence rate of fatal accidents at work can be seen in 2020 in the HeSCare sector (Figure 89).

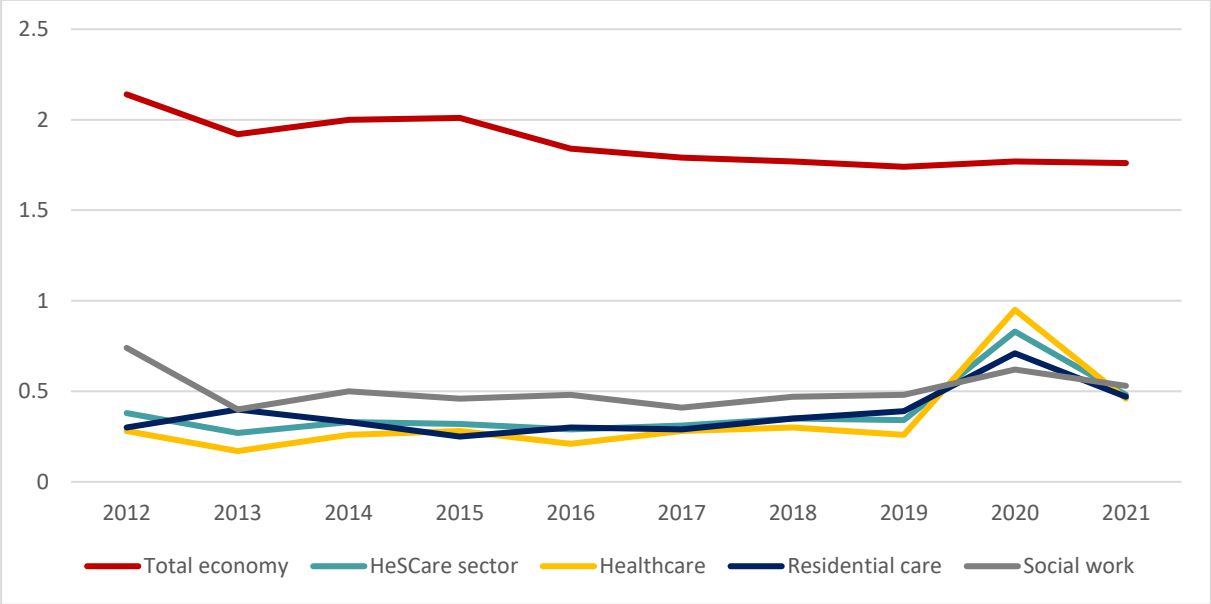
Table 12: Number of fatal accidents at work in relation to all the sectors and the HeSCare sector and subsectors, EU-27, 2011-2021

Year	Total – all NACE activities	HeSCare sector	Healthcare	Residential care	Social work
2011	3.947	50	24	16	10
2012	3.757	69	29	11	29
2013	3.408	50	18	15	17
2014	3.562	61	28	13	20
2015	3.643	63	31	10	22
2016	3.336	56	23	12	21
2017	3.272	61	31	12	18
2018	3.332	71	34	15	22
2019	3.408	71	31	17	23
2020	3.358	172	113	30	29
2021	3.347	104	57	21	27

Source: Panteia, based on European Statistics on Accidents at Work (ESAW), 2023

[28] See: https://ec.europa.eu/eurostat/web/products-eurostat-news/-/edn-20230428-1

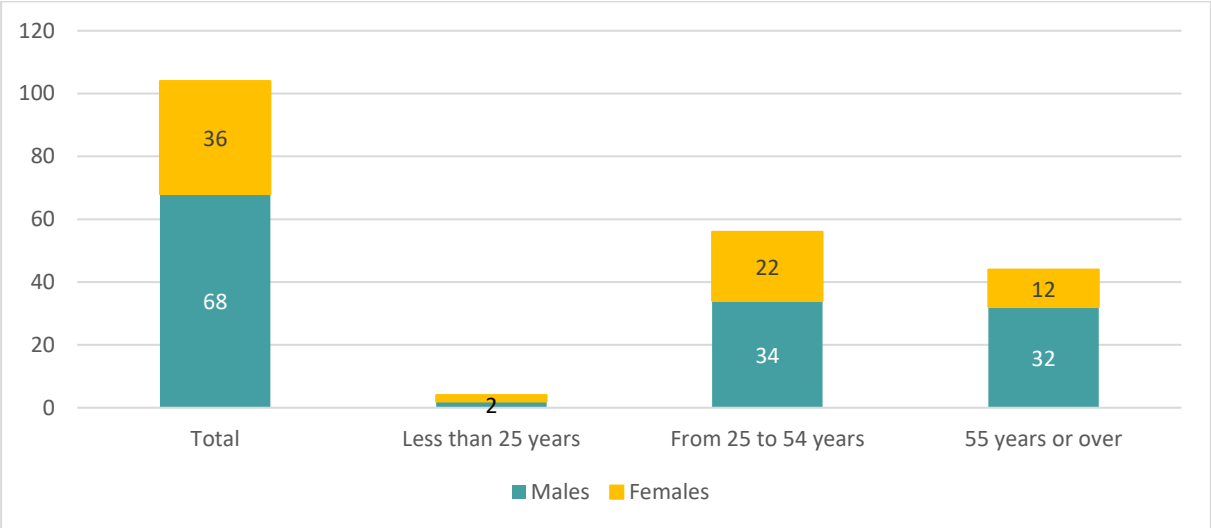
Figure 89: Incidence rate of fatal accidents at work in relation to all the sectors and the HeSCare sector and subsectors, EU-27, 2011



Source: Panteia, based on European Statistics on Accidents at Work (ESAW), 2023

Analysing gender differences, it is striking that for 2021 (the last year available), about two-thirds of the workers that suffered a fatal accident was male in a sector that is predominantly containing female workers (Figure 90).

Figure 90: Number of fatal accidents at work in the HeSCare sector, by gender and age category, EU-27, 2021

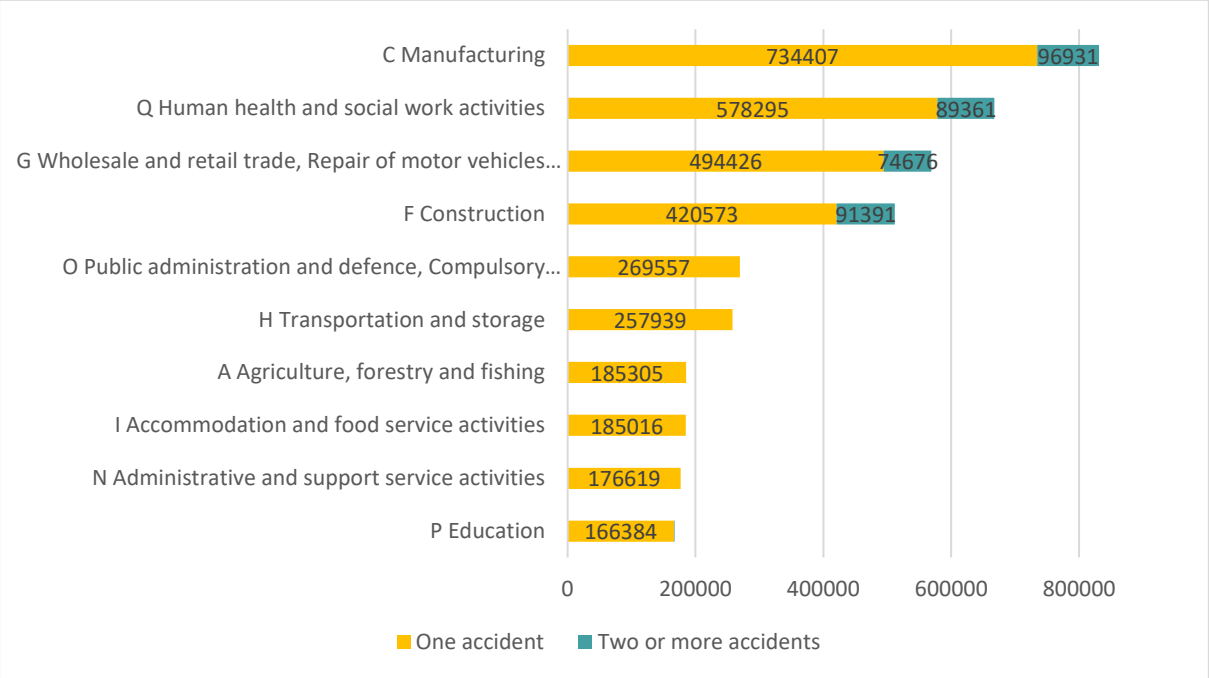


Source: Panteia, based on European Statistics on Accidents at Work (ESAW), 2023

- **Non-fatal accidents**

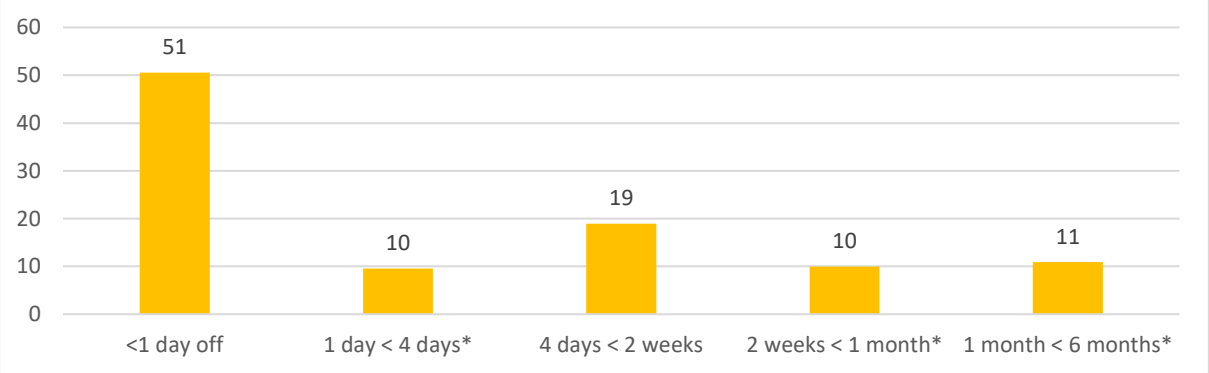
According to LFS data, **in the HeSCare sector, accidents are reported more often compared to other sectors.** Only in Manufacturing (NACE code C) are accidents reported more often (Figure 91). Most of the reported accidents in the HeSCare sector have a relatively low impact, with about 50% of the accidents leading to < 1 day time off work, and about 80% < 2 weeks' time off (Figure 92).

Figure 91: Persons reporting at least one accident at work including sectors that recorded more than 100.000 cases, EU-27, 2020



Source: EU Labour Force Survey, 2020
Base: Employed, age group 15-64.

Figure 92: Persons reporting an accident at work resulting in time off work in the HeSCare sector, EU-27, 2020 (%)



Source: EU Labour Force Survey, 2020
Base: % of total employed that had an accident at work, age group 15-64.

When analysing ESAW data on non-fatal accidents between 2011 and 2021, there are some similarities with the ESAW data on fatal accidents. It is interesting that the number of fatal accidents in the total economy (all NACE activities) is relatively stable, whereas **the number of non-fatal accidents in the HeSCare sector seems to increase over the years** (see Table 13).

Older workers (those aged 55 years and over) accounted for 19.2 % of all non-fatal accidents at work in the EU in 2021, with only workers in public administration and defence and agriculture, forestry and fishing reporting higher figures amongst this age group than HeSCare workers (Eurostat, 2023a).

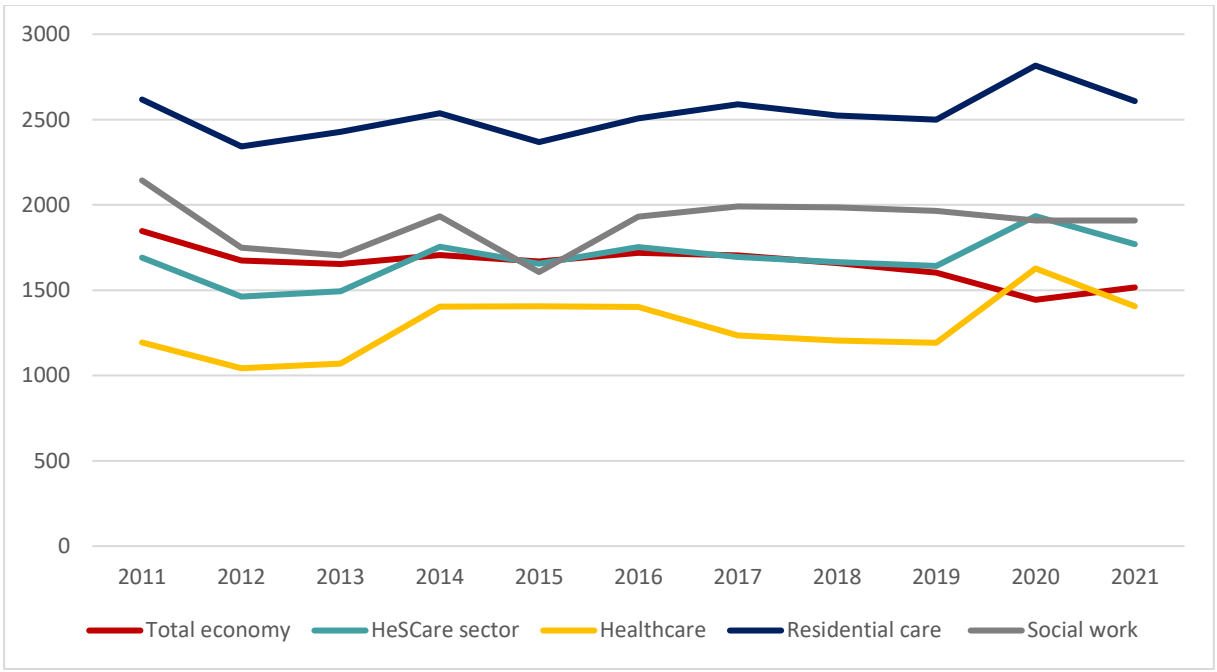
The incidence rate of non-fatal accidents at work has remained relatively stable, with a spike in 2020 in the healthcare subsector (again, related to the COVID-19 pandemic) (Figure 93).

Table 13: Number of non-fatal accidents at work in relation to the all the sectors and the HeSCare sector and subsectors, 2011-2021

Time	Total - all NACE activities	HeSCare sector	Healthcare	Residential care	Social work
2021	2,886,507	384,298	170,802	115,675	97,020
2020	2,735,566	401,788	192,890	119,872	89,025
2019	3,140,950	344,617	140,242	109,856	94,520
2018	3,124,828	338,716	137,215	109,027	92,474
2017	3,116,691	336,233	137,441	110,377	88,414
2016	3,112,736	338,971	154,127	102,928	81,916
2015	3,030,077	329,346	153,730	98,223	77,394
2014	3,031,648	326,839	150,915	98,563	77,362
2013	2,936,708	279,666	113,913	94,013	71,740
2012	2,937,737	263,722	108,491	86,090	69,141
2011	3,169,243	276,743	113,661	89,880	73,201

Source: Panteia, based on European Statistics on Accidents at Work (ESAW), 2023

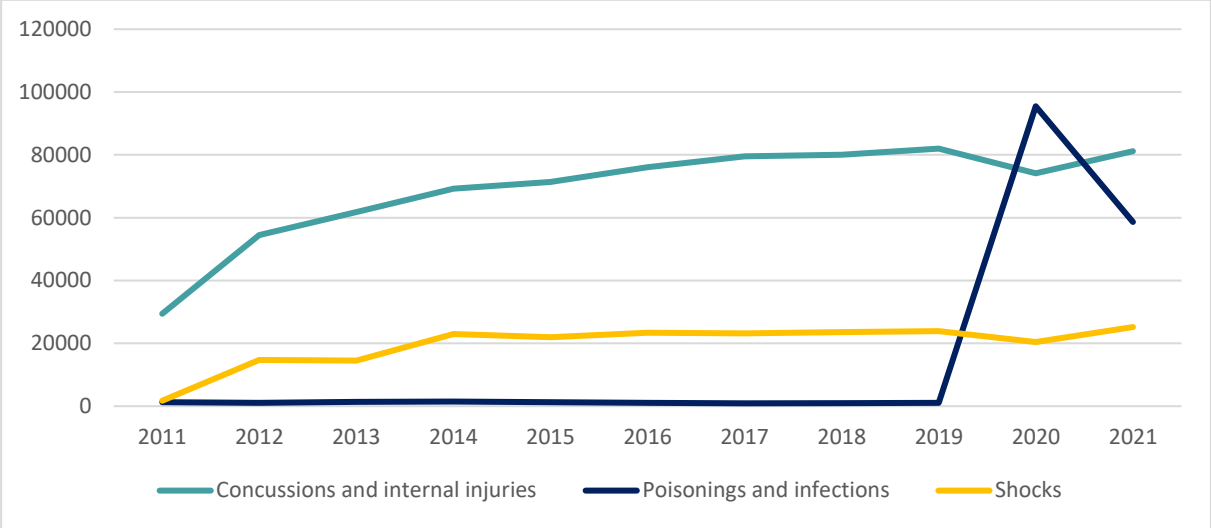
Figure 93: Incident rate of non-fatal accidents at work in relation to the total economy and the HeSCare sector and subsectors, EU-27, 2011-2021



Source: Panteia, based on European Statistics on Accidents at Work (ESAW), 2023

Similarly with the fatal accidents, a surge is observed in 2020, most likely due to COVID-19. Data from ESAW on the type of injury (see below) indeed show a large surge of infections from 2020 onwards, which is caused by the COVID-19 pandemic.

Figure 94: Number of accidents at work (total severity) for the HeSCare sector by type of injury (selection of injuries with the largest increase over the period 2011-2021), EU-27



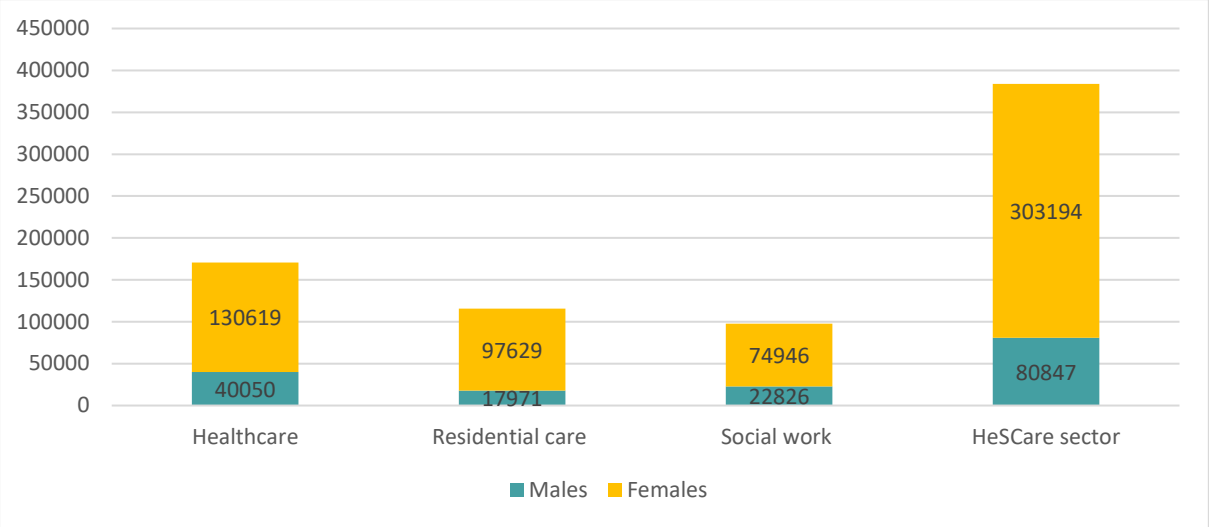
Source: Panteia, based on European Statistics on Accidents at Work (ESAW), 2023

An EU-OSHA study from 2019 explored the link between some accidents and types of injuries (such as dislocations, sprains, strains and bone fractures) with acute MSDs. In some Member States, accident figures address acute episodes of musculoskeletal problems, for instance those occurring after lifting of heavy loads. Where this is the case, the proportion of these accidents are among the most (or the most) common work-related accidents. However, causality may run both ways as work-related accidents can result in (acute) MSDs, but already existing MSDs may also cause work-related accidents (EU-OSHA, 2019c).

A recent French study looked at how co-exposures to physical and psychosocial work factors increase the occurrence of workplace injuries among French care workers, with workplace injuries being highly related to both physical and psychosocial exposures. The study stressed the importance of taking into account psychosocial factors in addition to considering physical factors when analysing the occurrence of workplace injuries, as is usually the case. Prevention actions must be taken to reduce both physical and psychosocial exposure (Colin, R, et al, 2022).

When analysing gender differences, ESAW data show that female workers have significantly more non-fatal accidents than their male counterparts (see Figure 95). This is however logical since the workforce is predominantly female.

Figure 95: Number of non-fatal accidents in the HeSCare sector, by gender, 2021 (*)



Source: Panteia, based on European Statistics on Accidents at Work (ESAW), 2023
(*) 257 accidents attributed to the sector are unknown regarding the gender of the person having the accident.

4. OSH Management in the HeSCare sector

4.1 Introduction

This chapter provides information regarding the OSH management practices that exist in the HeSCare sector. This involves analysis of relevant survey data that indicates the extent and characterisation of workplace risk assessments and the reasons why establishments do not regularly carry out these assessments. Additionally, the preventive measures to cope with OSH-related risks are presented, including general health promotion measures and specific measures for preventing OSH-related risks.

Information is provided on how establishments in the sector use health and safety services and external providers, including the arrangement of regular medical examinations to monitor the health of employees, the use of health and safety services or the use of OSH information from external organisations. This chapter also examines the extent to which OSH issues are discussed and OSH related training takes place at different management levels and at the work floor.

This chapter uses information from ESENER-19, the OSH Pulse 2022 Survey, as well as qualitative information gathered from the literature review and in-depth interviews. Where available and relevant, information has been provided in relation to sector/subsector, establishment size, Member States and by characteristic of the HeSCare workforce (age, gender, education level). Comparisons over time between ESENER-19 and ESENER-14 are also presented where relevant.

4.2 Presence and characterisation of risk assessments

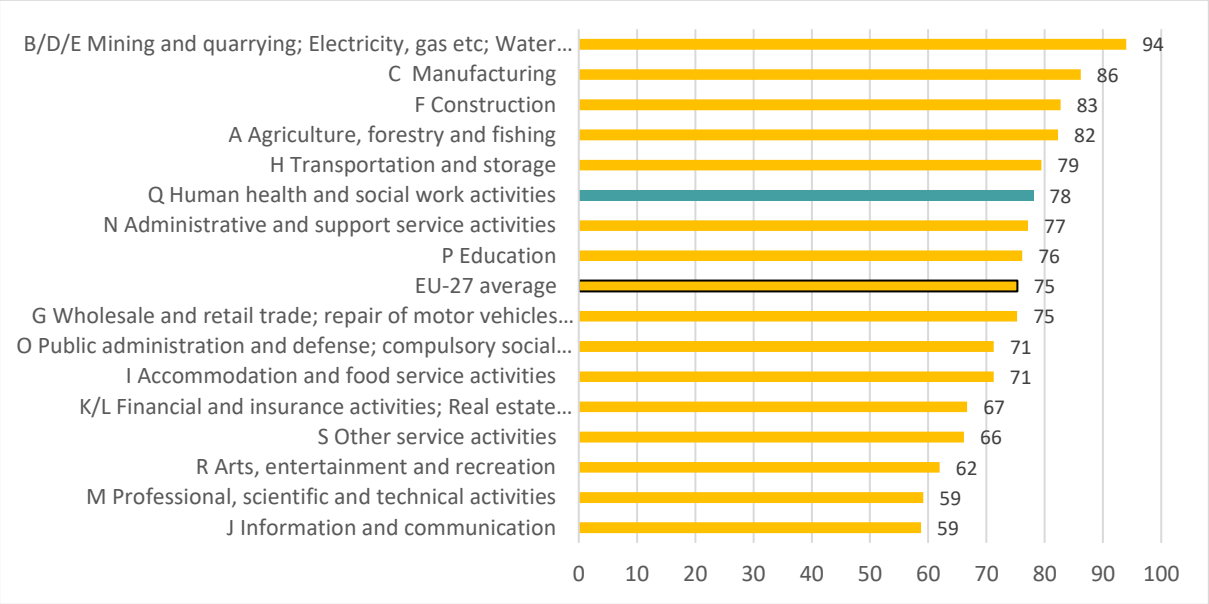
4.2.1 Presence of risk assessments

(Regular) risk assessments are considered the most important instrument to ensure safe and healthy work within an organisation. OSH risk assessments are a comprehensive method to identify workplace related risk factors that have the potential to cause harm by analysing, evaluating, and prioritising the importance of these risks and the occupational groups affected by them and, finally, prioritising and proposing new appropriate ways to eliminate or control these risks. Risk assessments are therefore considered a vital element within any OSH management plan and are the foundation of the European approach to OSH, as specified in **the EU Framework Directive on Safety and Health at Work (Directive 89/391/EEC)**[29] which came into force in 1989 as the centrepiece of OSH legislation (Del Castillo, 2016).

ESENER-19 includes a number of questions regarding risk assessments in the workplace. Based on this data, 78% of establishments in the HeSCare sector regularly carry our workplace risk assessments, which is slightly more when compared with the total EU economy (75%) (Figure 96).

[29] More information available at: https://osha.europa.eu/en/legislation/directives/the-osh-framework-directive/the-osh-framework-directive-introduction

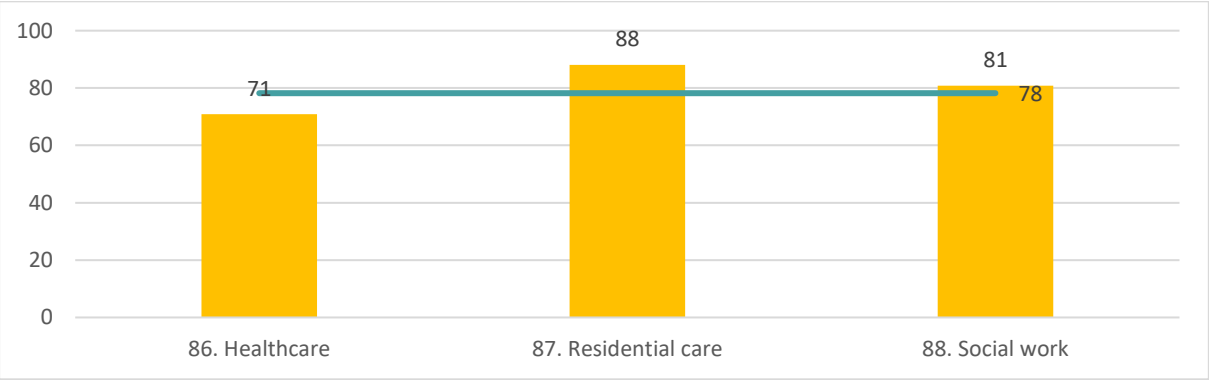
Figure 96: Percentage of establishments that regularly carry out workplace risk assessments by sector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: All establishments in the EU-27.

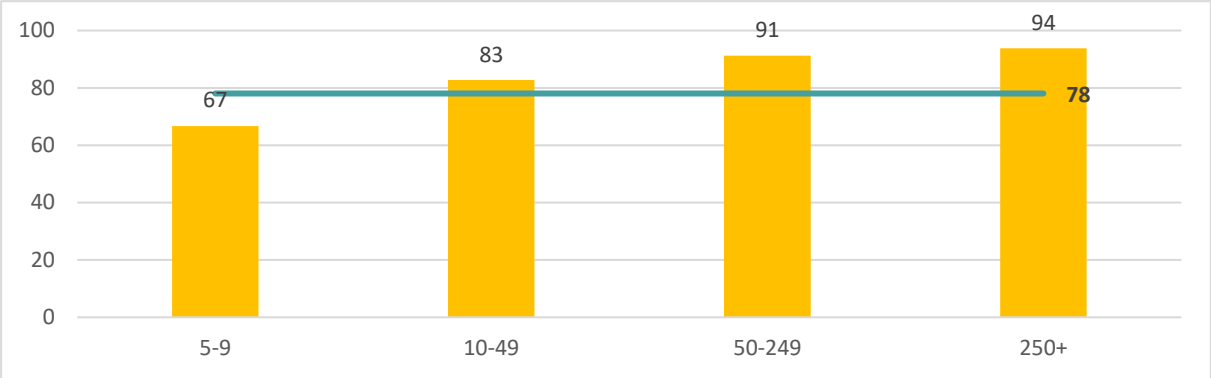
When analysing data at the subsector level, **establishments in residential care are more likely to regularly carry out workplace risk assessments compared with those operating in social work and healthcare** (88%, 81% and 71%, respectively), as shown in Figure 97. ESENER-2019 data show that carrying out regular risk assessments is positively associated with the size of the establishment, from 67% of micro and small establishments to 91% among medium-sized establishments, and 94% among large establishments (250 and more employees) (Figure 98). Looking at the data on establishment size presented in Section 2.2, it is shown that healthcare establishments tend to be smaller in size (for example general practitioners), which means there is likely to be less risk assessment when compared with larger organisations where assessments are more prevalent.

Figure 97: Percentage of HeSCare sector establishments that regularly carry out workplace risk assessments, by subsector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

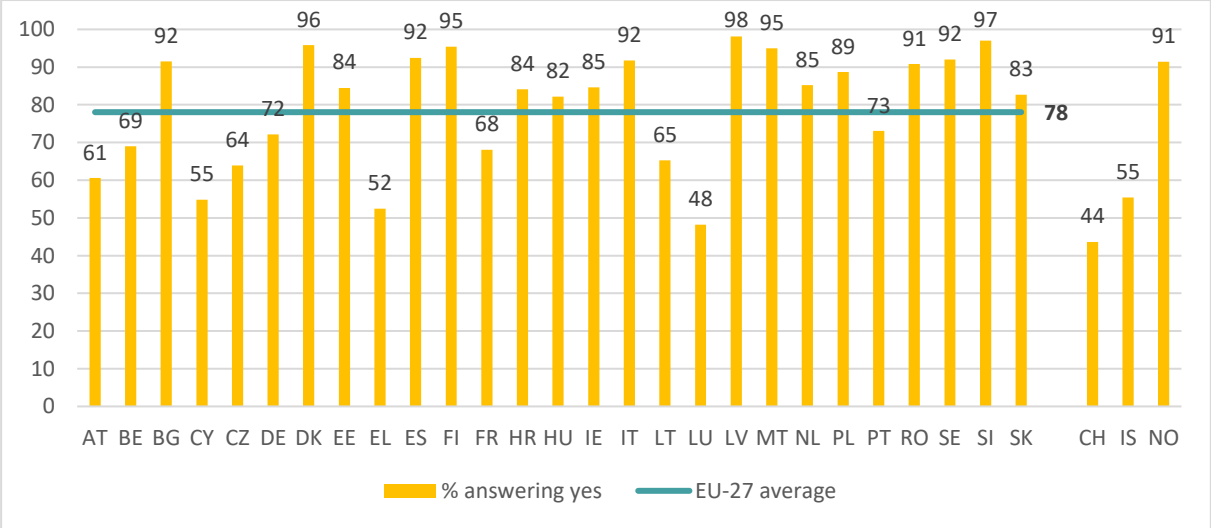
Figure 98: Percentage of HeSCare sector establishments that regularly carry out workplace risk assessments, by size, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

When looking at establishments in the HeSCare sector at country level, the available ESENER-19 data show significant variations amongst Member States (see Figure 99). The largest shares of establishments that regularly carry out workplace risk assessments can be found in Latvia (98%) followed by Slovenia (97%), whereas only 48% of establishments in Luxembourg in the HeSCare sector report regular workplace risk assessments.

Figure 99: Percentage of HeSCare sector establishments that regularly carry out workplace risk assessments, by country, EU-27 (+ CH, IS and NO), 2019 (%)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27, Switzerland, Iceland and Norway.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

4.2.2 Characterisation of risk assessments

This subsection provides further information regarding the characteristics of the risks assessments that are carried out in the HeSCare sector. This includes topics such as the person carrying out the assessments, the elements that are routinely assessed, the type of workplaces assessed and the type of employees included, the frequency of these risks assessments or whether written documentation is stored.

The main source for information on these issues is ESENER-19, with the data shown in Table 14. This data show that 33% of HeSCare sector establishments indicate that these risk assessments are contracted to external providers, whereas 55% state that they are conducted by internal staff and 12% by both equally. **The most common topics which are routinely evaluated in HeSCare workplace**

risk assessments are dangerous chemical or biological substances (90%, slightly above the EU-27 average of 86% across all sectors), as well as work postures and physical working demands and organisational aspects such as work schedules (both 77%). Establishments in the HeSCare sector are less likely to cover workplaces at home (23%) and workplaces outside the premises of the establishment (54%) when compared to the total economy (31% and 65%, respectively).

The share of establishments with additional people besides employees on the payroll who cover exclusively people on the payroll within their risk assessments are higher in HeSCare than the EU-27 average across all sectors (50% and 47% respectively) (Table 14).

95% of the sector establishments confirm that they have conducted their risk assessments in the last two years and 95% of the sector establishments have documented their risk assessments in written form, higher than for all EU-27 establishments (92%) (Table 14).

Table 14: Characterisation of risk assessment practices, HeSCare sector and all sectors, EU-27, 2019 (%)

	HeSCare	Total
Main actors involved in their elaboration:		
▪ Conducted mainly by internal staff.	55	42
▪ Contracted mainly to external providers.	33	47
▪ Both about equally.	12	11
Topics routinely evaluated:		
▪ Safety of machines.	72	83
▪ Dangerous chemical or biological substances (*).	90	86
▪ Work postures, physical working demands.	77	75
▪ Exposure to noise, vibrations, heat or cold.	45	62
▪ Supervisor-employee relationships.	65	55
▪ Organisational aspects such as work schedules.	77	66
Cover workplaces at home (**)	23	31
Cover workplaces outside the premises of the establishment. (***)	54	65
Cover only people on the payroll (****)	50	47
Carried out in the last two years.	95	81
Documented in written form (*****)	95	92

Source: Panteia based on ESENER-19
Base: Information from HeSCare establishments that carry out regularly risk assessments.
(*) Only HeSCare establishments reporting the presence of chemical or biological substances as a risk.
(**) HeSCare establishment where any of the employees regularly work from home.
(***) HeSCare establishments where any of the employees work anywhere else outside the premises of the establishment.
(****) HeSCare establishments where additional persons besides employees on the payroll work in the establishment (subcontractors, temporary agency workers, volunteers).
(*****)HeSCare establishments that conduct workplave risk assessments regularly.

Box 4: Further analysis of ESENER-19 data variables relating to attention given to OSH management and establishment employment characteristics

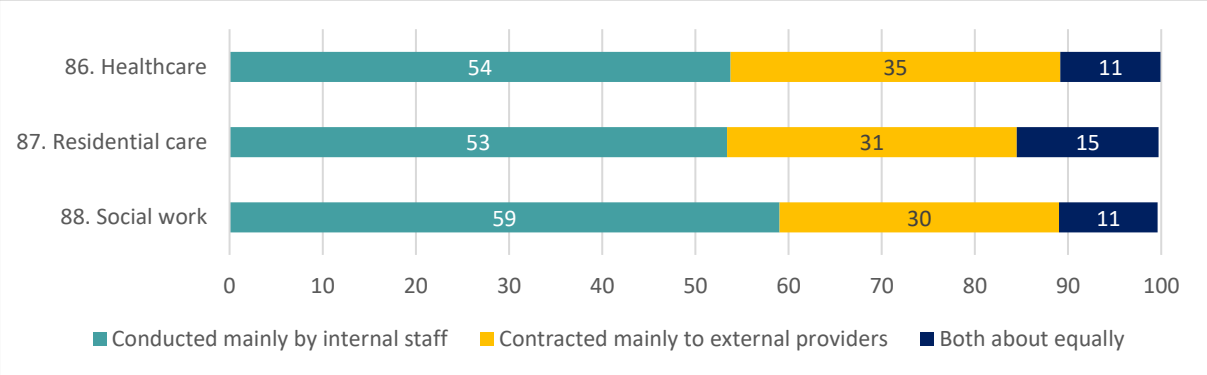
Further analysis of ESENER-19 data variables (see Methodological appendix 2) show that:

- Attention to OSH management is slightly higher in HeSCare sector establishments where there are individuals working who are not on the payroll. This includes subcontractors, temporary agency workers or volunteers. This suggests that the presence of non-payroll workers may influence the level of attention given to OSH management in the sector.
- In the healthcare subsector and the total economy, attention to OSH management is slightly higher in establishments where some employees regularly work from home. This indicates that establishments allowing remote work arrangements may have a slightly elevated focus on OSH management.

Source: Panteia based on ESENER-19

Regarding who performs the risk assessment, no notable differences exist between subsectors, as shown in Figure 100. Establishments in the social work subsector are most likely to have risk assessments conducted by internal staff (59%). This is most likely due to the fact that social care is far less complex with regard to potential OSH related risks. Furthermore, social work tends to be organised by local governments and therefore they may have a unit or an OSH specialist in the central administration who carries out risk assessments for them. In contrast the healthcare subsector has the highest percentage of establishments reporting risk assessments being carried out by contracted external providers. One possible explanation is that hospitals often have complex environments with various departments, specialised units and a wide range of tasks, whereby conducting comprehensive risk assessments in such settings can be challenging due to the diversity of activities and potential hazards, therefore requiring specialised expertise.

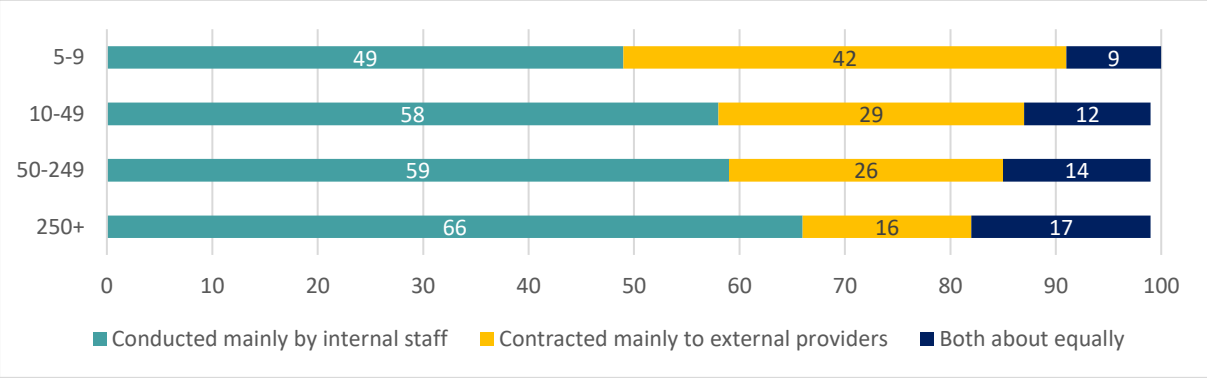
Figure 100: Responsibility within HeSCare sector establishments for conducting workplace risk assessments, by subsector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: Information from HeSCare sector establishments that carry out regularly risk assessments.

When considering the size of the establishment in the HeSCare sector, it is possible to identify **an increasing share of risk assessments being conducted by internal staff as the size of establishment increases** (Figure 101). Whereas 49% of establishments with 5-9 employees use internal staff to conduct risk assessments, this figure increases to 66% in the case of establishments with 250+ employees. Smaller establishments are therefore more likely to contract risk assessments to external providers. Small establishments tend not to have OSH specialists on their staff, nor can they have a central administration to manage it. In smaller enterprises, the person in charge of carrying out activities related to the protection and prevention of occupational risks is often the employer himself.

Figure 101: Responsibility within HeSCare sector establishments for conducting workplace risk assessments, by size, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: Information from HeSCare sector establishments that carry out regularly risk assessments.

Establishments routinely evaluate various topics in the context of risks assessments, and some differences can be seen across the subsectors, which is indicated in Table 15. For instance, establishments in healthcare are more likely to evaluate dangerous chemical or biological substances in the context of risk assessments when compared to other establishments in the sector (routinely evaluated in 94% of cases). As shown in Chapter 3, workers in the healthcare subsector are more likely to be exposed to harmful chemical or biological agents when compared to other subsectors. Establishments in the social work subsector more frequently evaluate exposure to noise, vibrations, heat or cold (53%, compared to 45% for the total HeSCare sector), and establishments in the residential care subsector are more likely to evaluate organisational aspects such as work schedules (84%, compared to 77% for the total HeSCare sector). Risk assessment of organisational aspects is relatively high across sectors. This is self-evident as these pose a risk to workers as well as to the service receivers' safety, health and quality of services.

Table 15: Topics that are routinely evaluated in HeSCare sector establishments workplace risk assessments, by subsector, EU-27, 2019 (%)

	Dangerous chemical or biological substances	Work postures, physical working demands	Exposure to noise, vibrations, heat or cold	Supervisor-employee relationships	Organisational aspects such as work schedules
Healthcare	94	77	41	63	74
Residential care	90	79	42	68	84
Social work	80	77	53	66	76
Total HeSCare	90	78	45	66	77

Source: Panteia based on ESENER-19
Base: Information from HeSCare sector establishments that carry out regularly risk assessments.

Box 5: Further analysis of ESENER-19 data variables relating to attention given to OSH management and the presence of certain risk factors

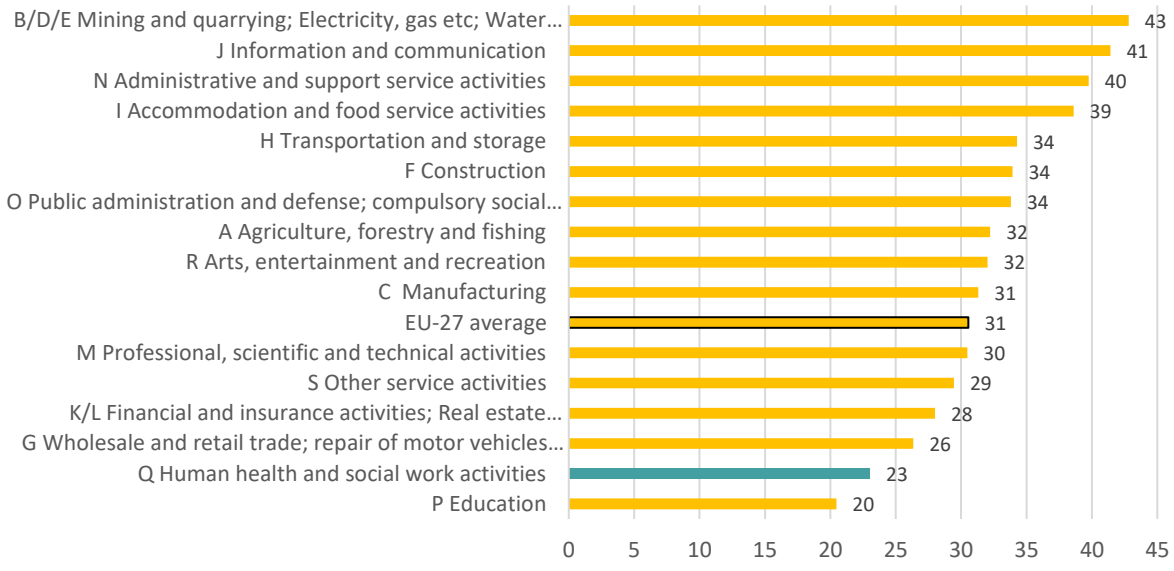
Further analysis of ESENER-19 data variables relating to attention given to OSH management and risk factors (see Methodological appendix 2) show that:

- Attention given to OSH management varies based on the presence of specific risk factors, with variations across different subsectors.
- In each subsector of HeSCare, establishments paying attention to OSH management is associated with the presence of repetitive hand or arm movements.
- In the social work subsector, attention to OSH management is linked to risks related to lifting or moving people or heavy loads, as well as exposure to chemical or biological substances.
- In the healthcare and residential care subsectors, attention to OSH management is associated with the risk of slips, trips and falls.
- The residential care subsector demonstrates the broadest range of risk factors indicating attention to OSH management, including repetitive movements, lifting, slips, trips, falls, prolonged sitting, and accidents with vehicles during work.
- Interestingly, attention to general OSH management in the residential care subsector is negatively associated with the presence of a psychosocial risk factor: poor communication or cooperation within the organisation.
- In the overall economy, attention to general OSH management is associated with risks such as lifting, repetitive hand or arm movements and accidents with vehicles.

Source: Panteia based on ESENER-19

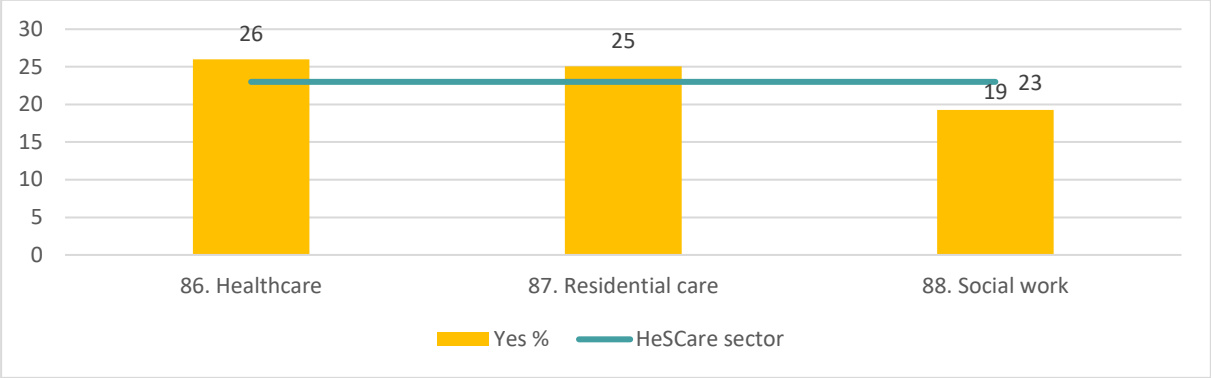
As can be seen from Figure 102, **establishments in the HeSCare sector are one of the least likely sectors in which risk assessments also cover workplaces at home** (23%, compared to 31% in the total economy). At the subsector level, there are no major differences, with risk assessments more likely to cover workplaces at home in the healthcare subsector when compared to the other sectors (Figure 103).

Figure 102: Percentage of establishments that indicate risk assessments cover workplaces at home, by sector, EU-27, 2019 (%)



Source: Panteia, based on ESENER-19
Base: Information from HeSCare sector establishments that carry out regularly risk assessments and indicate any of the employees regularly work from home.

Figure 103: Percentage of HeSCare sector establishments that indicate risk assessments cover workplaces at home, by subsector, EU-27, 2019 (%)



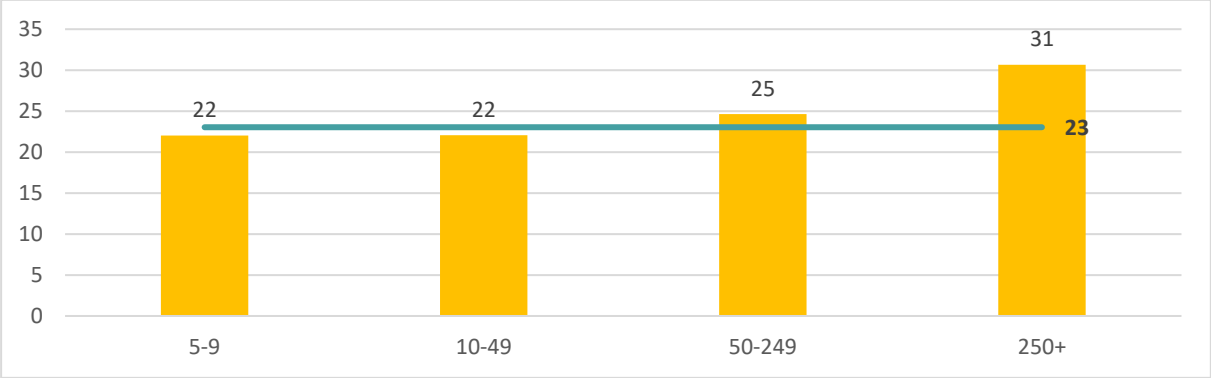
Source: Panteia, based on ESENER-19
Base: Information from HeSCare sector establishments that carry out regularly risk assessments and indicate any of the employees regularly work from home.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

Most healthcare workers, especially care providers, need to be physically present in the workplace, and therefore remote work has been challenging to implement in the healthcare subsector because of the need for direct patient care. However, during COVID-19, the WHO advised workers to telework where possible to mitigate the spread of the virus. Prior to the pandemic, only 5% of workers in the EU worked from home, whereas after the outbreak of COVID-19 this number increased to 40%. Currently, 31% of the workers within the EU work from home fully or on a hybrid basis. The healthcare subsector was the second after public sector when it comes to the prevalence of working from home (Eurofound, 2022b).

Telework can cause issues regarding risk assessments and the application of OSH regulations, due to the fact that the worker is carrying out their duties away from the organisational premises (Morilla-Luchena et al. 2021). Employers have very limited possibilities to influence the workers' home-office environment, as in many countries they are not allowed to send OSH experts to assess the work-related risks (Matisane et al. 2021). Nevertheless, the safety of the work environment remains the responsibility of the employer, even if the work is performed remotely. After the increase in teleworking, many Member States and institutions have adopted guidelines that aim to reduce the OSH risks associated with teleworking.

Larger establishments are more likely to report that risk assessments include workplaces at home, which can be seen in Figure 104. 31% of HeSCare sector establishments with 250 or more employees indicate workplaces at home are covered, whereas only 22% of establishments with 5-9 employees indicate this. It is more likely to be the case that larger establishments have more administrative and office-based workers supporting care activities, and therefore these roles are more likely to be able to be carried out at home.

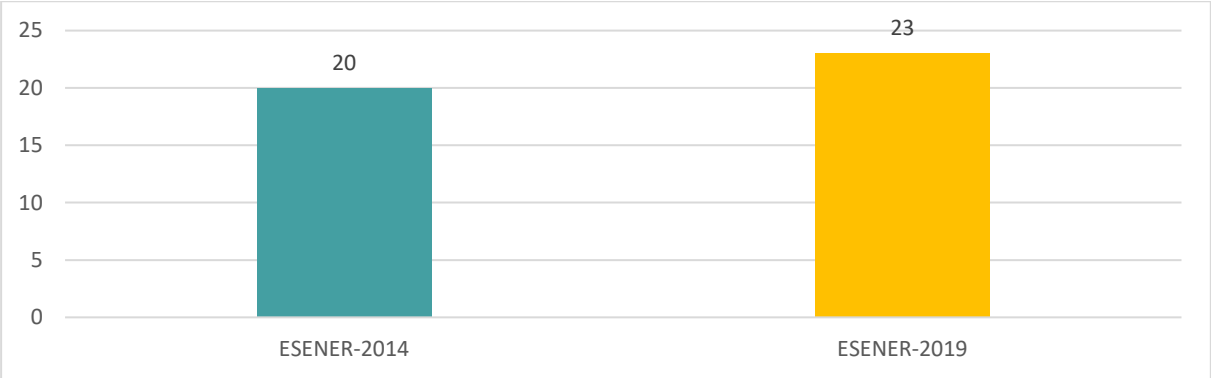
Figure 104: Percentage of HeSCare sector establishments that indicate risk assessments cover workplaces at home, by size, EU-27, 2019 (%)



Source: Panteia, based on ESENER-19
Base: Information from HeSCare sector establishments that carry out regularly risk assessments and indicate any of the employees regularly work from home.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

The data indicate also that **HeSCare sector establishments were more likely in 2019 to conduct workplace risk assessments at home**, when compared with 2014 (23% and 20% of establishments, respectively) (Figure 105).

Figure 105: Percentage of HeSCare sector establishments that indicate risk assessments cover workplaces at home, EU-27, 2014 and 2019 (%)

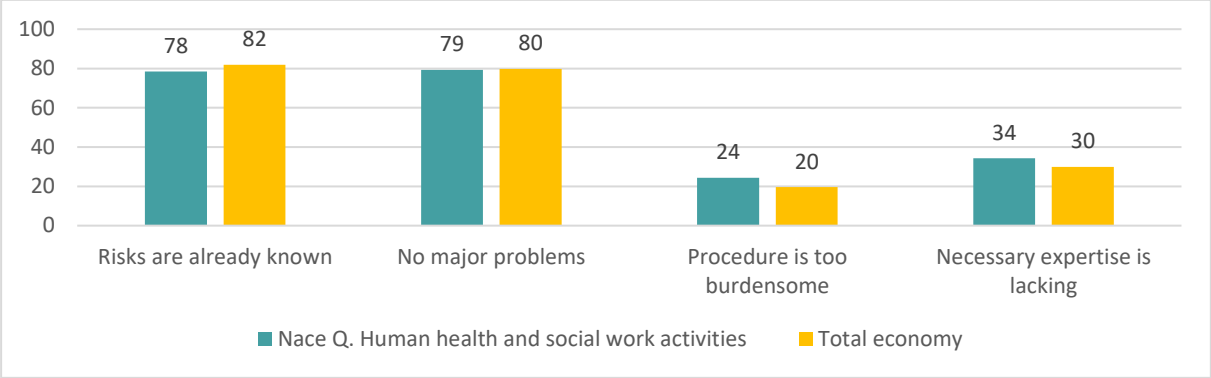


Source: Panteia, based on ESENER-14 and ESENER-19
Base: Information from HeSCare sector establishments that carry out regularly risk assessments and indicate any of the employees regularly work from home

4.2.3 Reasons for a lack of risk assessments in the HeSCare sector.

This section presents the reasons as to why some HeSCare sector establishments do not regularly carry out risk assessments. The HeSCare sector often involves complex and dynamic work environments, whereby workers may face a wide range of hazards. The HeSCare sector also includes a diverse range of job roles, from clinical healthcare professionals to support staff, who encounter a number of unique risks. Based on the available data from ESENER-19, **the most common reason mentioned by the respondents for not conducting risk assessments is that there are no major problems** (79% of HeSCare sector establishments), **followed by the fact that the risks are already known** (78%) (Figure 106). 34% of establishments indicate a lack of necessary expertise to conduct risk assessments and 24% indicate that the associated procedures are perceived as too burdensome. There are no important differences in comparison with EU-27 average results for all sectors.

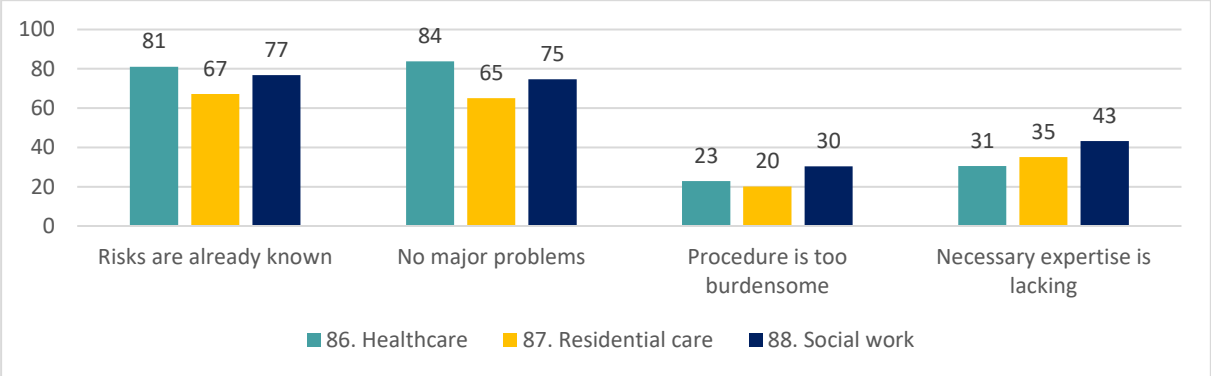
Figure 106: Reasons why workplace risk assessments are not regularly carried out, by sector, EU-27, 2019 (%)



Source: Panteia based on ESENER-2019
Base: Responses only of those HeSCare sector establishments that do not carry out regularly workplace risk assessments.

At the subsector level, Figure 107 shows that there are several notable differences. Establishments in the healthcare subsector more likely to report risks already being known and no major problems evident, when compared with the residential and social work subsectors. Establishments in the social work subsector are more likely to report that risk assessment procedures are too burdensome and that necessary skills are lacking.

Figure 107: Reasons why workplace risk assessments are not regularly carried out, by subsector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: Responses only of those HeSCare sector establishmentsthat do not carry out regularly workplace risk assessments.

To assist establishments (particularly SMEs) in their risk assessment obligations, EU-OSHA has developed an online interactive risk assessment (OiRA) tool to enable micro and small organisations to assess their risks themselves.[30] OiRA tools are easily accessible, and they are available for free on the web. There are several specific tools relating to the HeSCare sector.

4.3 Presence of preventive measures to cope with OSH-related risks, including OSH-related training activities

Establishments may take several preventive measures to deal with OSH-related risks, some of which are related to general health promotion measures and preventive measures that are designed to manage specific OSH-related risks. This section looks at the types and prevalence of measures taken to address certain work-related health and safety risks for workers, using data from ESENER-19 and qualitative sources of information (literature review and in-depth interviews).

[30] OiRA Project website (https://oiraproject.eu/en)

4.3.1 Measures for reducing/coping with musculoskeletal risks

This section looks at measures taken by establishments to reduce or cope with general OSH related risks, in particular MSDs. There are multiple categories of preventive measures, such as:

- Technical interventions
- Organisational interventions
- Work environment and design
- Person-oriented interventions and training programmes

Specific examples of preventive measures by way of **technical interventions** are ceiling lifts, bath lifts, mobile lifts, standing hoists, height-adjustable beds and baths, height-adjustable workbenches, sliding sheets, sliding/transfer boards, wheelchair stair lifts and slings (EU-OSHA, 2015). Other technical interventions could be replacing conventional keyboards with ergonomically designed keyboards, using ergonomic office chairs to work in front of a computer and the use of trolleys for lifting and transporting heavy objects (Tang, 2022).

Some ways to prevent MSDs by way of **organisational interventions** include reducing the time exposed to demanding working conditions, promoting a healthy work-life balance, a work planning that considers working times of workers as well as peak working hours, distribution of tasks, and types of patients, alternating activities, a comprehensive policy on technical aids, a well-designed work environment and a staff training programme. A lift-team can also be a useful intervention to reduce risk of MSDs. This entails a team of at least two workers, who is trained to handle/lift in an ergonomic manner using the various ambulatory aids available, and is responsible for lifting, turning and transporting patients who are not independently mobile (EU-OSHA, 2015).

In addition**, the design of spaces** can contribute to reducing the risk of MSDs. This can include universal design for accessibility taking into account the type of floor surfaces, adequate lighting for handling operations and sufficient space for patient handling (EU-OSHA, 2015).

Person-oriented interventions may include training programmes, information, education, as well as the introduction of exercises. Education and training regarding MSDs can include topics such as the variation of postures and tasks; working methods, workstation adjustment and use of equipment; manual handling, and additionally techniques for lifting and/or handling patients; exercises and fitness (EU-OSHA, 2015). Handling patients including lifting, lowering, holding, pushing, or pulling can be classified into three categories, namely: 1) manually (meaning by physical force of the workers and the patient, if they are able); 2) handling using small handling aids such as sliding sheets, and 3) handling using large lifting aids such as ceiling lifts (EU-OSHA, 2015).

An example of a good practice in addressing the prevention of MSDs by healthcare establishments identified during the 2020-2022 "Healthy Workplaces Lighten the Load" campaign is an initiative undertaken by the University Hospital in Vienna. The operational department of the hospital launched special actions to mitigate the risks of MSDs among workers, whose work involves twisting movements and pushing and carrying heavy loads. The actions included circulating a survey regarding the risk factors resulting in MSDs and as a result of the assessment, implementing improvements by purchasing new equipment and organising trainings for workers. The initiative proved to be successful especially due to the involvement of the workers and the age sensitive approach (considering that the average age of the staff in the department is above 50). Additionally, this multifactorial approach helped the hospital to address both physical and psychosocial elements of the risks associated with MSDs (EU-OSHA, 2022c).

ESENER-19 survey data provides information on the main types of measures taken by establishments in the HeSCare sector in the last 3 years to deal with OSH related risks, which is presented in Table 16. The data show that the most recurrent practice is the provision of ergonomic equipment, reported by 79% of HeSCare sector establishments, followed by the provision of equipment to help with the lifting or moving (71%) and the possibility for people with health problems to reduce working hours (70%). In contrast to this, the least widespread measure is the rotation of tasks to reduce repetitive movements (50%).

Establishments in residential care are most likely to provide equipment to help with lifting and moving patients (83%), rotate tasks to reduce repetitive movements (62%) and allow people with health

problems to reduce working hours (75%). Healthcare establishments are most likely to provide ergonomic equipment (81%) and encourage regular breaks for people in uncomfortable working conditions (68%). In most cases, all subsectors are more likely to take preventive measures for MSDs when compared to the total economy. In the case of the possibility for people with health problems to reduce working hours, the HeSCare sector has the highest figures (70%) when compared to all sectors within the total EU economy.

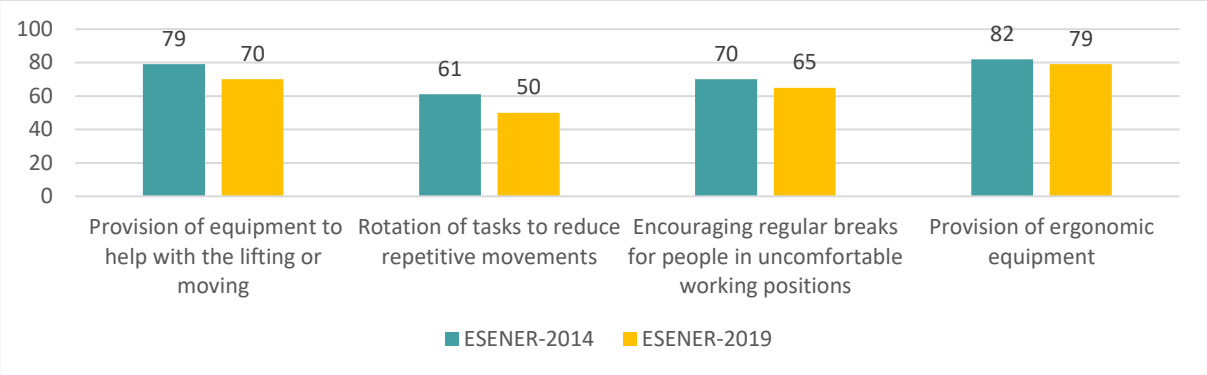
Table 16: Preventive measures for MSDs taken by HeSCare sector establishments in the last 3 years, by subsector, 2019, EU 27 (%)

	Provision of equipment to help with the lifting or moving	Rotation of tasks to reduce repetitive movements	Encouraging regular breaks for people in uncomfortable working positions	Provision of ergonomic equipment	The possibility for people with health problems to reduce working hours
Healthcare	65	46	68	81	65
Residential care	83	62	63	76	75
Social work	66	47	63	77	74
Total HeSCare sector	71	50	65	79	70
Total EU economy	77	48	60	67	54

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

When analysing changes over time in the HeSCare sector, Figure 108 shows that all preventive measures are less prevalent in 2019 when compared to 2014. There is a significant reduction in the provision of equipment to help with lifting of moving patients (79% in 2014, when compared to 70% in 2019).

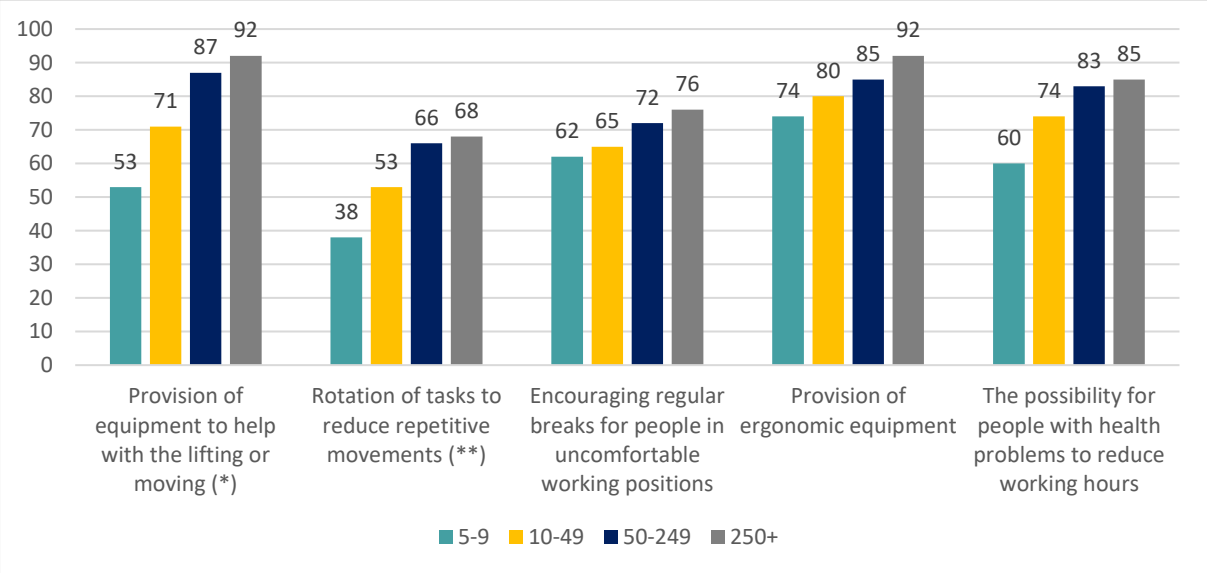
Figure 108: Preventive measures for MSDs taken by HeSCare sector establishments in the last 3 years, EU-27, 2014 and 2019 (%)



Source: Panteia based on ESENER-14 and ESENER-19
Base: All HeSCare sector establishments in the EU-27.

From an establishment size perspective, data from ESENER-19 provide insights into the differences which arise between small and large establishments. Larger establishments are more likely to report the different risk-related measures. The largest difference between micro establishments and establishments with 250 and more employees is in regard to providing equipment to help with lifting and moving (53% and 92%, respectively) (Figure 109).

Figure 109: Preventive measures for MSDs taken by HeSCare sector establishments in the last 3 years, by size, EU 27, 2019 (%)



Source: Panteia based on ESENER-2019
Base: All HeSCare establishments in the EU-27.
(*) Only referred to HeSCare establishments reporting the presence of "lifting or moving heavy loads".
(**) Only referred to HeSCare establishments reporting the presence of "repetitive hand or arm movements".

One of the major characteristics of the residential care subsector is the large share of senior workers in the workforce. Therefore, addressing the ageing of the workforce is one of the aspects that needs to be considered in the context of the risk assessments in this sector. An example of a good practice is an initiative undertaken by VitaS; an elderly care company located in Belgium. An internal analysis of the composition of the VitaS workforce showed that more than 50% of the employees were at least 45 or older. In view of this the company decided to take special measures to address the potential physical and mental health issues that those workers could experience. These measures included a survey among its workers concerning the use of lifting aids and the creation of a special working group to

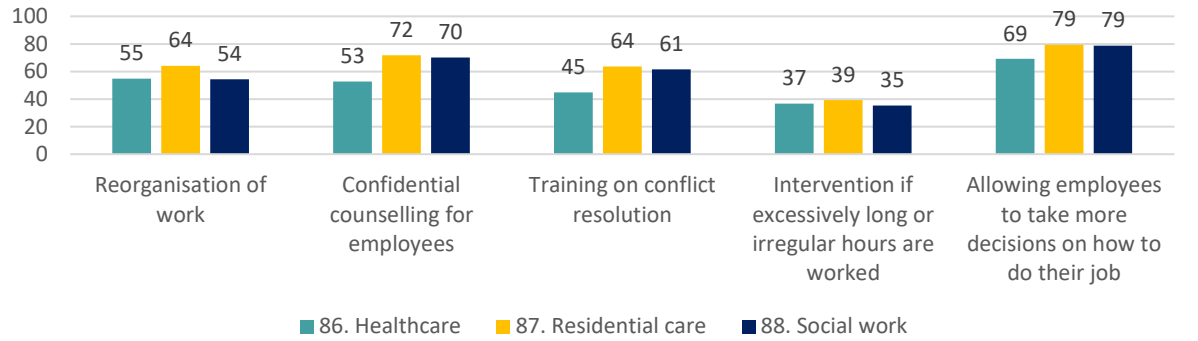
address the issue and to create the new policy. Furthermore, it employed external experts whose tasks were to conduct ergonomic assessments on VitaS' sites to find out where the physical burdens for older workers could be reduced. VitaS decided to also allow their employees greater flexibility regarding their schedules and working times. The success of the initiative was based on a comprehensive approach which considered the specific needs of all workers. The active involvement of the staff also resulted in the feeling among the workers that their needs were heard and addressed (EU-OSHA, 2017).

4.3.2 Measures to reduce and cope with psychosocial risks

As shown in section 3.1.2, psychosocial risks are highly prevalent in the HeSCare sector. ESENER-19 collected information regarding the measures taken by establishments in the HeSCare sector in the last three years to prevent psychosocial risks. The most frequently reported measures include allowing employees to take more decisions on how to do their job (75%, compared to an EU-27 average across all sectors of 67%) and allowing confidential counselling for employees (63% of responses, above the EU-27 average across all sectors of 42%). The least commonly reported measure by HeSCare sector establishments is intervention if excessively long or irregular hours are worked (37%). Compared to establishments from all EU-27 average across all sectors, the shares of establishments which apply the above-mentioned measures are below those of the HeSCare sector.

At subsector level, Figure 110 shows that establishments in the residential care and social work subsectors are most likely to allow employees to take more decisions on how to do their job (both 79%). In most cases (with the exception of intervention if excessively long or irregular hours are worked), establishments in the healthcare subsector are the least likely to take measures to reduce psychosocial risks.

Figure 110: Prevention measures taken by HeSCare sector establishments to prevent psychosocial risks in the last three years, by subsector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27.

When analysing data by establishment size, there is some correlation between size and the prevalence of measures to prevent psychosocial risks (as shown in Figure 111). However, this is not the case regarding the reorganisation of work and allowing employees to take more decisions on how to do their job (where the largest establishments are the least likely to take these types of measures).

Box 6: Further analysis of ESENER-19 data variables relating to psychosocial OSH management practices and types of establishment

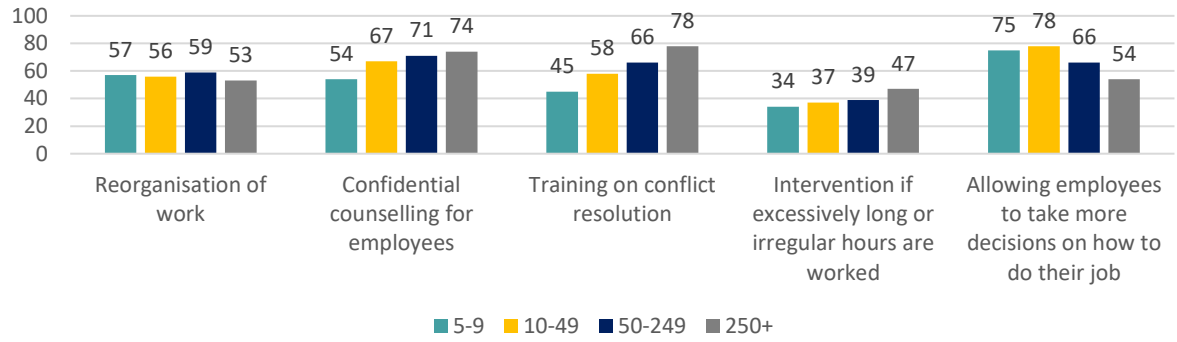
Further analysis of ESENER-19 data variables relating to attention given to psychosocial OSH management and types of establishment (see Methodological appendix 2) show that:

- Across all three HeSCare subsectors, establishments that are part of multi-establishment organisations show a higher level of attention to psychosocial OSH management compared to single establishments.
- Residential care and social work subsector related findings:
  - In the residential care and social work subsectors, the difference in psychosocial OSH management between single establishments and multi-establishment organisations is primarily due to variations in the prevalence of other factors rather than establishment size. This suggests that factors other than simply being part of a larger organisation influence the approach to psychosocial OSH management.
  - Additionally, within multi-establishment organisations in the residential care and social work subsectors, subsidiary sites demonstrate a higher level of attention to psychosocial OSH management compared to headquarters.
  - These findings indicate that while being part of a multi-establishment organisation generally correlates with higher attention to psychosocial OSH management across HeSCare subsectors, the differences observed in the residential care and social work subsectors are not solely attributable to establishment size. Factors specific to each subsector and differences between headquarters and subsidiary sites within multi-establishment organisations also play a significant role.

Source: Panteia based on ESENER-19.

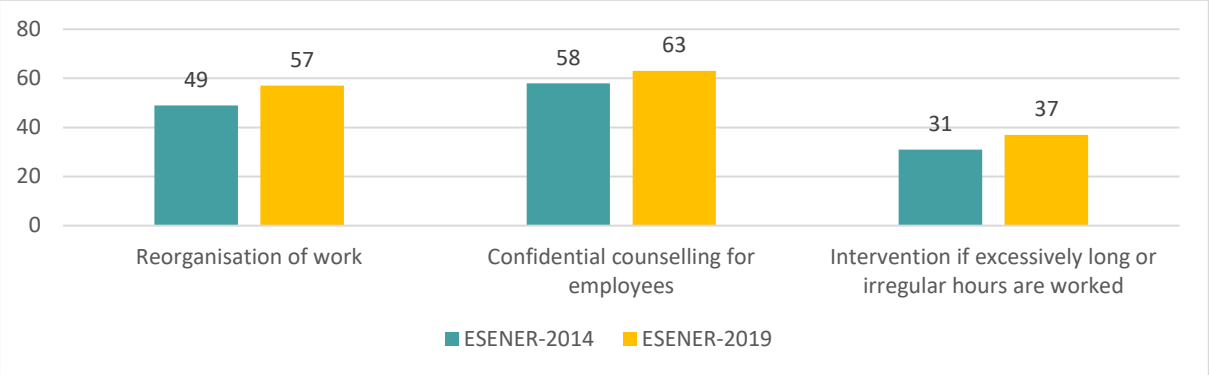
Comparing ESENER-14 with ESENER-19 reveals that establishments in 2019 were more likely to take preventive measures to address psychosocial risks (see Figure 112).

Figure 111: Prevention measures taken by HeSCare sector establishments to prevent psychosocial risks in the last three years, by size, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27.

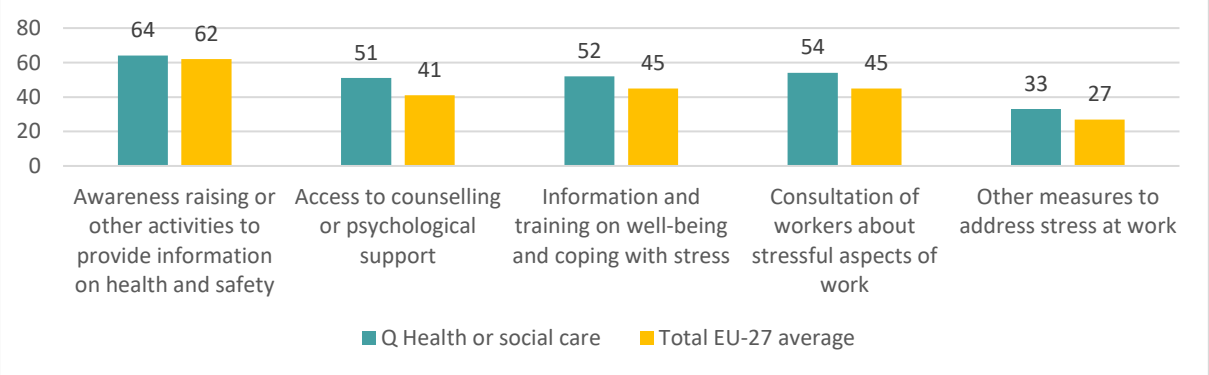
Figure 112: Prevention measures taken by HeSCare sector establishments to prevent psychosocial risks in the last three years, EU-27, 2014 and 2019 (%)



Source: Panteia based on ESENER-14 and ESENER-19
Base: All HeSCare sector establishments in the EU-27.

The OSH Pulse 2022 Survey also provides insights regarding initiatives and activities taken to address psychosocial risks in the workplace (see Figure 113). Around 54% of surveyed workers in the HeSCare sector were consulted about stressful aspects of work (compared to 45% of the total EU-27 economy) and 51% of workers working in the HeSCare sector indicated they had access to counselling or psychological support (compared to 41% of the total EU-27 economy). Approximately 52% indicated they received information and training on well-being and coping with stress (compared to 45% of the total economy), and 33% indicated there were other measures to address stress at work. Overall, the figures for the HeSCare sector are higher than for the economy as a whole.

Figure 113: Percentage of workers indicating the following initiatives were available at their workplace, by sector, EU-27, 2022 (%)



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

The ESENER-19 survey also provides information regarding other formal procedures implemented by establishments with 20 or more employees in the HeSCare sector to deal with and prevent exposure to psychosocial risks. In all cases, **HeSCare sector establishments across all subsectors are more likely to report formal procedures to address PSR when compared to the EU-27 average across all sectors,** which can be seen in Table 17. Around 74% of HeSCare establishments have a procedure to deal with cases of threats, abuse or assaults by clients and 59% have a procedure to deal with cases of bullying or harassment. 61% of the establishments have an employee survey including questions on work-related stress. When looking at differences between the subsectors, the presence of formal procedures is quite similar among establishments in residential care and social work. For the most part, establishments in healthcare are the least likely out of the three subsectors to have such formal procedures (although in all cases this is still more prevalent when compared to the total economy as a whole).

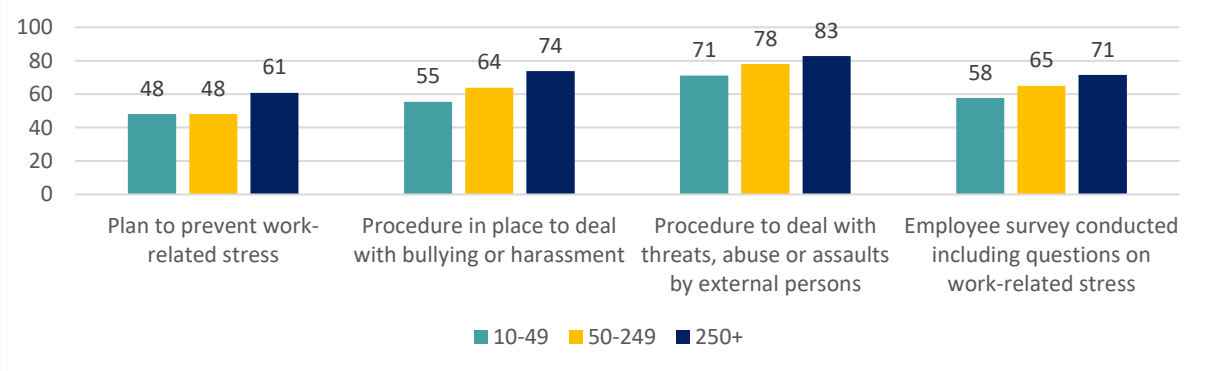
Table 17: Formal procedures taken by HeSCare sector establishments to prevent psychosocial risks, by subsector, EU-27, 2019 (%)

	Plan to prevent work-related stress	Procedure in place to deal with bullying or harassment	Procedure to deal with threats, abuse or assaults by external persons	Employee survey conducted including questions on work-related stress
86. Healthcare	49	53	74	55
87. Residential care	51	61	75	66
88. Social work	48	65	73	63
Total HeSCare sector	49	59	74	61
Total EU economy	33	45	51	44

Source: Panteia based on ESENER-19
Base: HeSCare sector establishments with 20 or more employees.

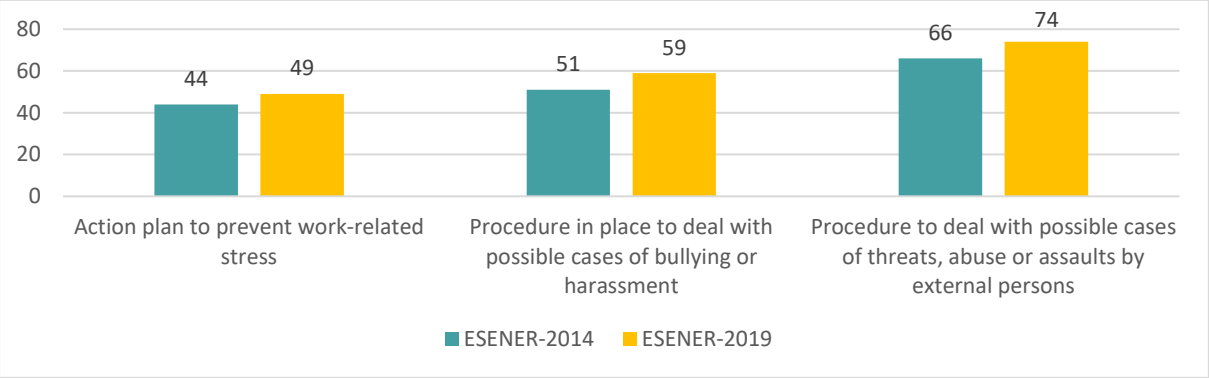
Larger establishments are more likely to have formal procedures to address psychosocial risks. 61% of establishments with 250 or more employees have a plan to prevent work related stress, compared to 48% of establishments with 249 or less employees (Figure 114). The most prevalent procedure across all establishment sizes is a procedure to deal with threats, abuse or assault by external persons. Data from ESENER-14 and ESENER-19 show that **formal procedures taken by establishments to prevent psychosocial risks have increased over time**. For instance, Figure 115 shows that in 2014, 51% of establishments have a procedure in place to deal cases of bullying or harassment, whereas this was 59% in 2019.

Figure 114: Formal procedures taken by HeSCare sector establishments to prevent psychosocial risks, by size , EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: HeSCare sector establishments with 20 or more employees.

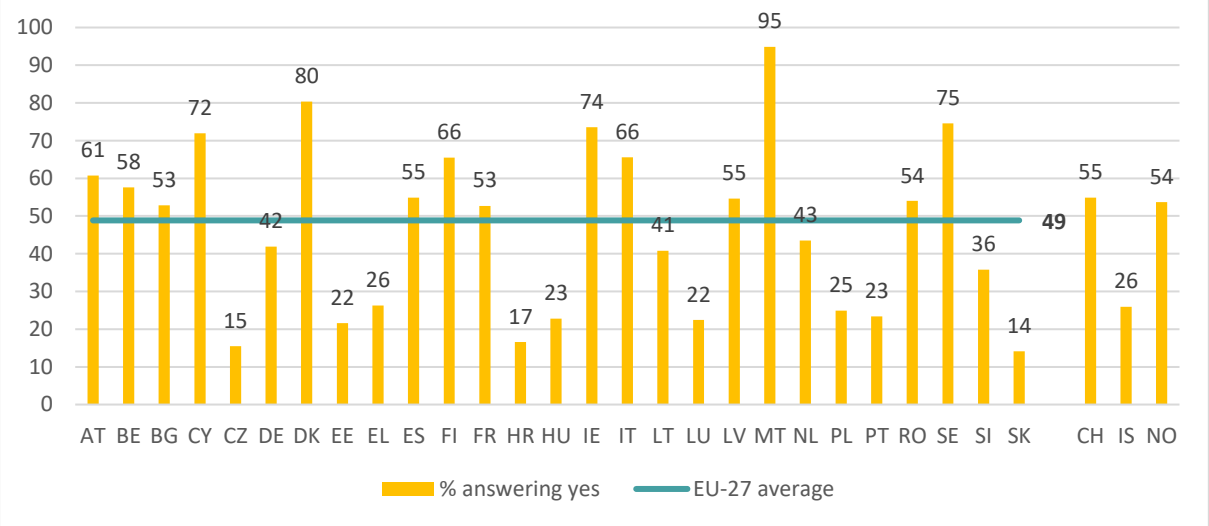
Figure 115: Formal procedures taken by HeSCare sector establishments to prevent psychosocial risks, EU-27, 2014 and 2019 (%)



Source: Panteia based on ESENER-14 and ESENER-19
Base: HeSCare sector establishments with 20 or more employees.

At country level, there are differences regarding the presence of formal procedures taken by establishments to prevent psychosocial risks in the HeSCare sector (see Figure 116). For example, when looking at establishments that have a plan to prevent work-related stress, establishments in Malta and Denmark are the most likely to have such a procedure (95% and 80%, respectively), whereas this is only the case for 14% of Slovakian enterprises in the HeSCare sector.

Figure 116: Percentage of HeSCare sector establishments with a presence of a plan to prevent work-related stress, by country, EU-27 (+ CH, IS and NO), 2019 (%)

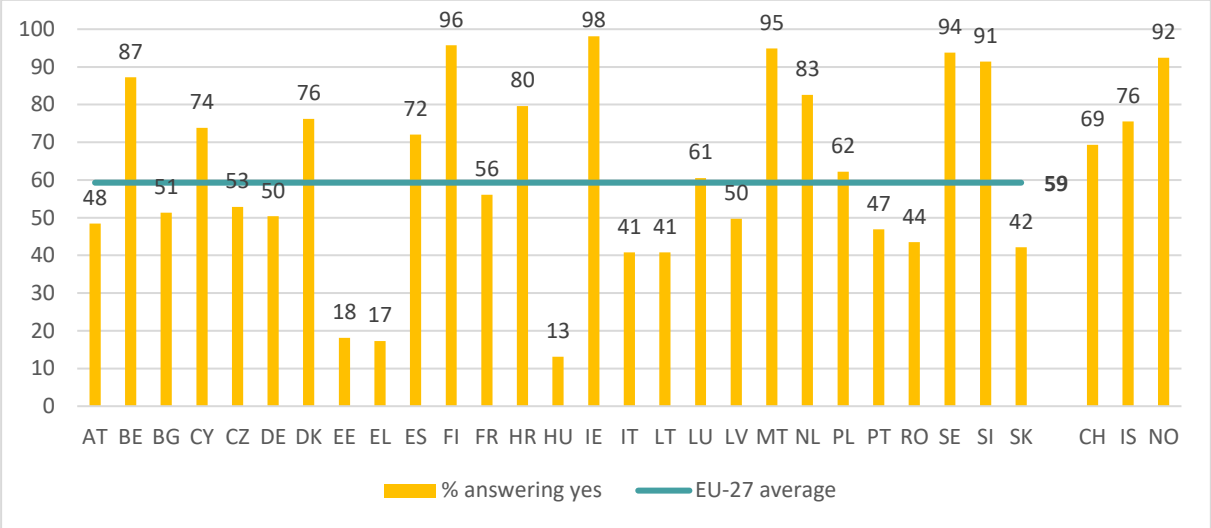


Source: Panteia based on ESENER-19
Base: HeSCare sector establishments with 20 or more employees in the EU-27, Switzerland, Iceland and Norway.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

A similar situation exists with regards to formal procedures to deal with cases of bullying and harassment. Around 98% of establishments in Ireland and 96% of Spanish establishments in the HeSCare sector have such a procedure, whereas this is only the case in 13% of establishments in Hungary (see Figure 117). In Ireland for example, the Dignity at Work policy for the Public Health Service sets out how the Health Service Executive and other public health service organisations aim to create and maintain an environment where staff are treated with dignity and respect. It sets out informal and formal procedures to deal with complaints regarding bullying, harassment and sexual harassment by other employees and non-employees (e.g., patients, service users, suppliers, contractors and visitors).

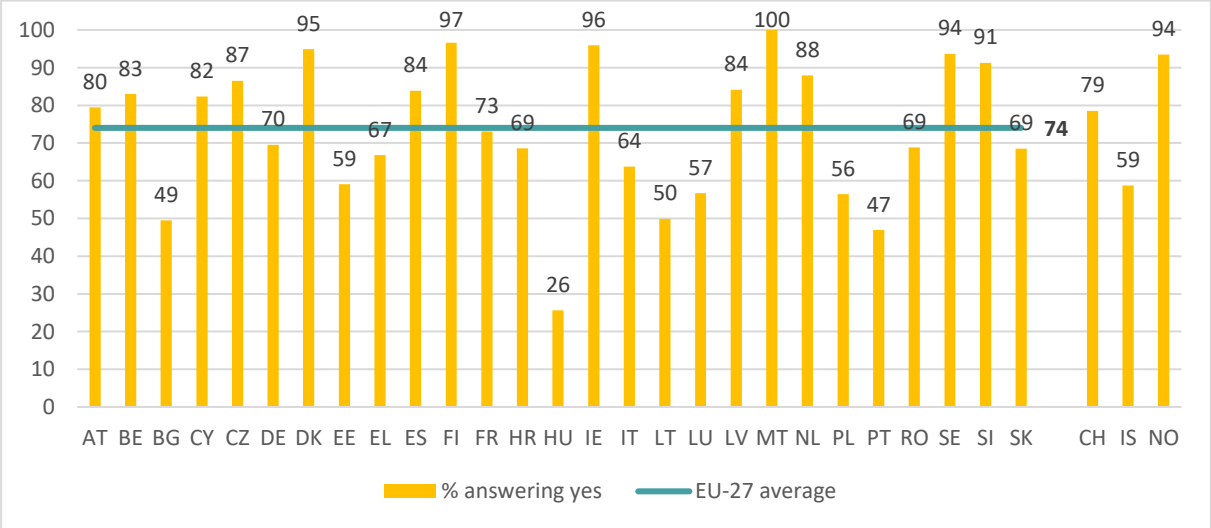
Procedures to deal with possible cases of threats, abuse or assaults by external persons are most common in Malta, Finland and Ireland (100%, 97% and 96%, respectively), and are least common in Hungary (26%) (see Figure 118).

Figure 117: Percentage of HeSCare sector establishments with a procedure to deal with cases of bullying and harassment, by country, EU-27 (+ CH, IS and NO), 2019 (%)



Source: Panteia based on ESENER-19
Base: HeSCare sector establishments with 20 or more employees in the EU-27, Switzerland, Iceland and Norway.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

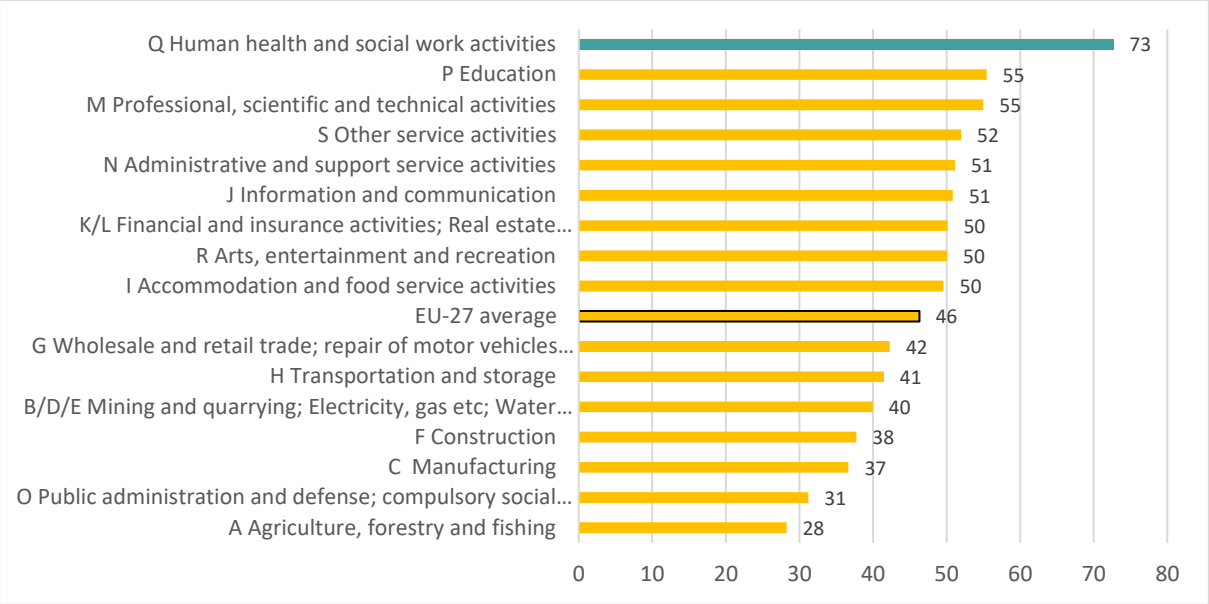
Figure 118: Percentage of HeSCare sector establishments with a procedure to deal with possible cases of threats, abuse or assaults by external persons, by country, EU-27 (+ CH, IS and NO), 2019 (%)



Source: Panteia based on ESENER-19
Base: HeSCare sector establishments with 20 or more employees in the EU-27, Switzerland, Iceland and Norway.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

Figure 119 shows that 73% of establishments in the HeSCare sector indicated that employees had been involved in identifying measures to reduce work related stress, compared to an average of 46% for the total economy.

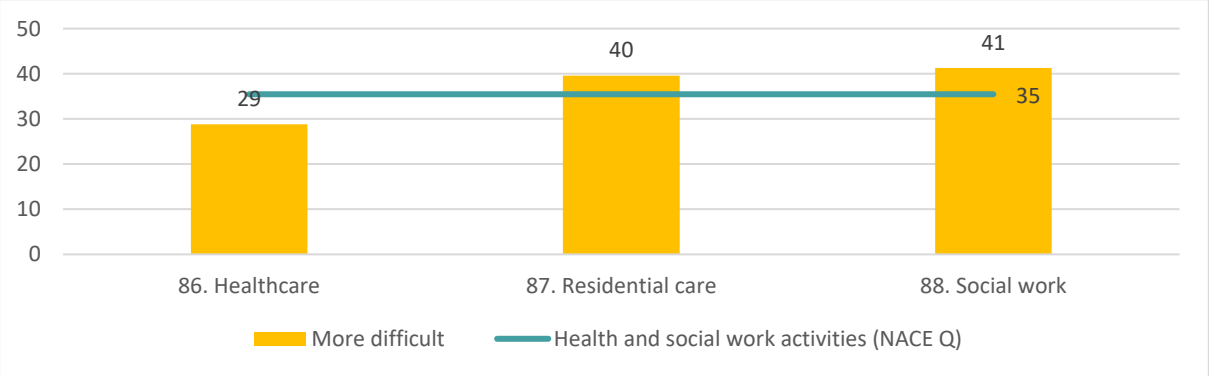
Figure 119: Percentage of HeSCare sector establishments in which employees have been involved in identifying measures to reduce work related stress, by sector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments.

Regarding whether psychosocial risks are easier or more difficult to address than other risks, 41% of establishments in the social work subsector and 40% of those in residential care indicate that they are more difficult, compared to 29% of those in the healthcare subsector (as shown in Figure 120). For the total EU economy, 22% of establishments indicated that psychosocial risks are more difficult to deal with when compared to other risks.

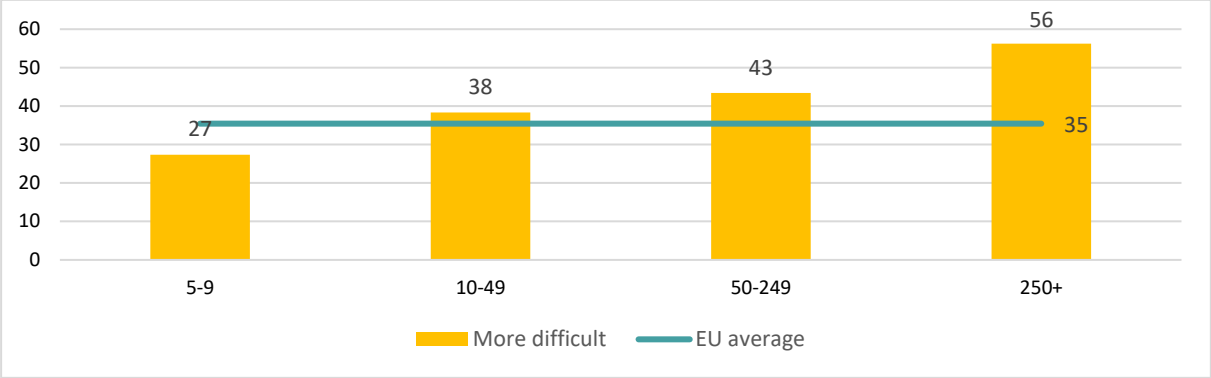
Figure 120: Percentage of HeSCare sector establishments that suggest that psychosocial risks are more difficult to address than other risks, by subsector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: Responses only of those establishments in the HeSCare sector that have identified one or more psychosocial risks.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

Larger establishments in the HeSCare sector are more likely to find psychosocial risks more difficult to address when compared to other risks (Figure 121). 56% of establishments with 250 or more employees indicated these were more difficult, compared to only 27% of establishments with 5-9 employees.

Figure 121: Percentage of HeSCare sector establishments that suggest that psychosocial risks are more difficult to address than other risks, by size, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: Responses only of those establishments in the HeSCare sector that have identified one or more psychosocial risks. The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

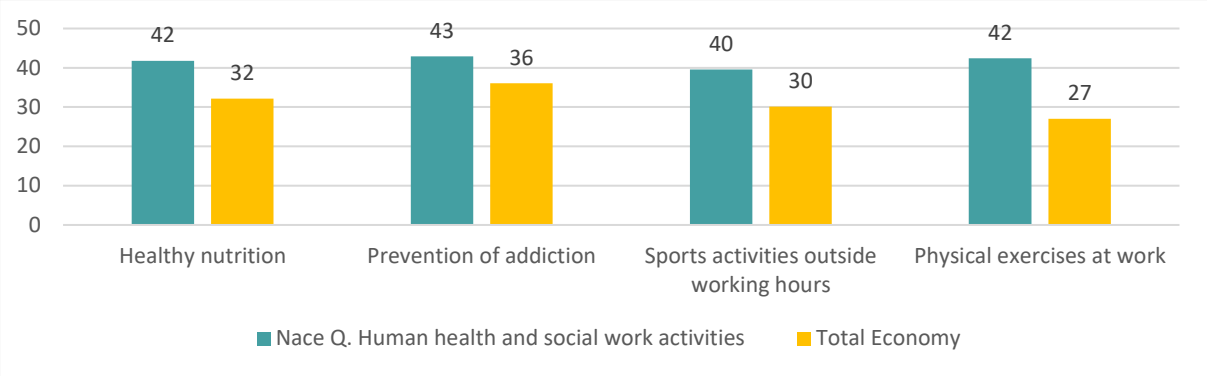
4.3.3 General health promotion measures

According to the WHO, health promotion is the process of empowering people to increase control over their health and its determinants through health literacy efforts and multisectoral action to increase healthy behaviours. These efforts usually address behavioural risk factors such as tobacco use, obesity, diet, and physical inactivity, as well as the areas of mental health, injury prevention, drug abuse control, alcohol control, health behaviour related to HIV and sexual health. Introducing health promotion measures or programs at the workplace is an ongoing trend to promote OSH in the HeSCare sector. Integrating health promotion into OSH workplace policies and programmes contributes to preventing occupational accidents and diseases and to protecting and improving the health and well-being of men and women at work (ILO, 2018a) An example of such measures can be found regarding the Workplace Health Promotion (WHP) program which was implemented in the Sienna University Hospital in Italy (Azienda Ospedaliera Universitaria Senese). In the cafeteria, fresh fruit and vegetables were made available at least three days a week, and posters were made available with the 'Tuscan Dietary Pyramid' to spread awareness of healthy eating practices. Also, cafeteria staff were instructed to serve correct portion sizes. Regarding the promotion of physical activity, notices and promotional posters encouraging the use of the stairs were posted in lifts and in highly frequented areas of the hospital (Lazzeri et al. 2019).

A further such example of a good practice regarding general health promotion measures in the HeSCare sector can be found in the UK, where NHS England funded six pilot sites to launch the 'NHS Healthy Workforce Project'. This programme offers a range of services and assistance to NHS staff in order to promote their health and overall well-being (Lawrence et al. 2022). One of their pilot sites was a hospital in the South of England, where they developed the 'LiveWell and Inspire' initiative, a program that offered staff mental health support, self-referral to physiotherapy, health checks, exercise, and healthy eating programs. Changes to the physical environment, including improving access to healthy food at work, were made across the hospital to align with the aims of the project (Lawrence et al. 2022). Alongside those measures, a staff consultation was conducted through a series of well-being group discussions, to gauge their perception of health-related issues and services being provided.

The ESENER-19 data show that 43% of HeSCare sector establishments raise awareness on the prevention of addiction (smoking, alcohol, drugs), followed by 42% that raise awareness on healthy nutrition. 40% of sector establishments promote sports activities outside working hours and 42% promote physical exercise at work (including back exercises, stretching and other). In all cases, these measures for health promotion are more frequently found in HeSCare establishments when compared with the total economy (with the highest figures of physical exercises at work in across the total economy) (Figure 122).

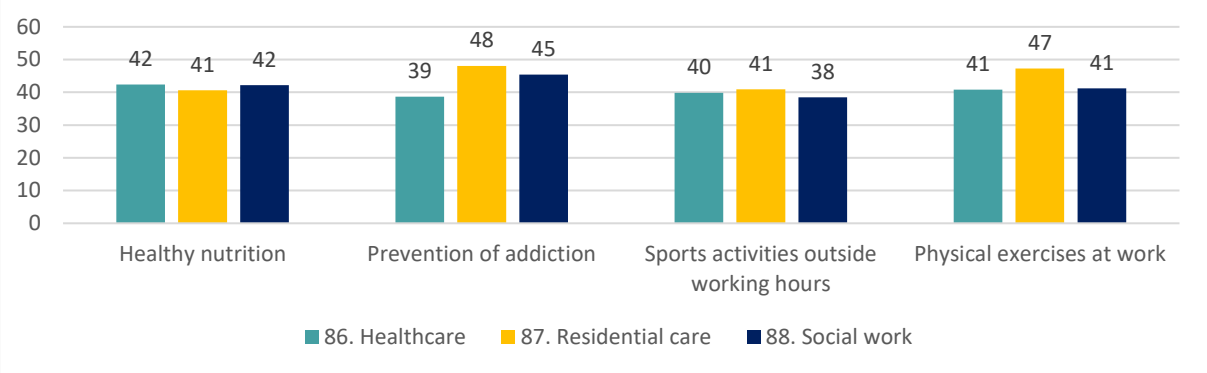
Figure 122: Establishments indicating measures for health promotion, by sector, EU-27, 2019 (%)



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

At subsector level, there are no large notable differences in the prevalence of general health promotion measures (as shown in Figure 123). Establishments in residential care are more likely to offer measures to prevent addiction, sports activities and physical exercises at work.

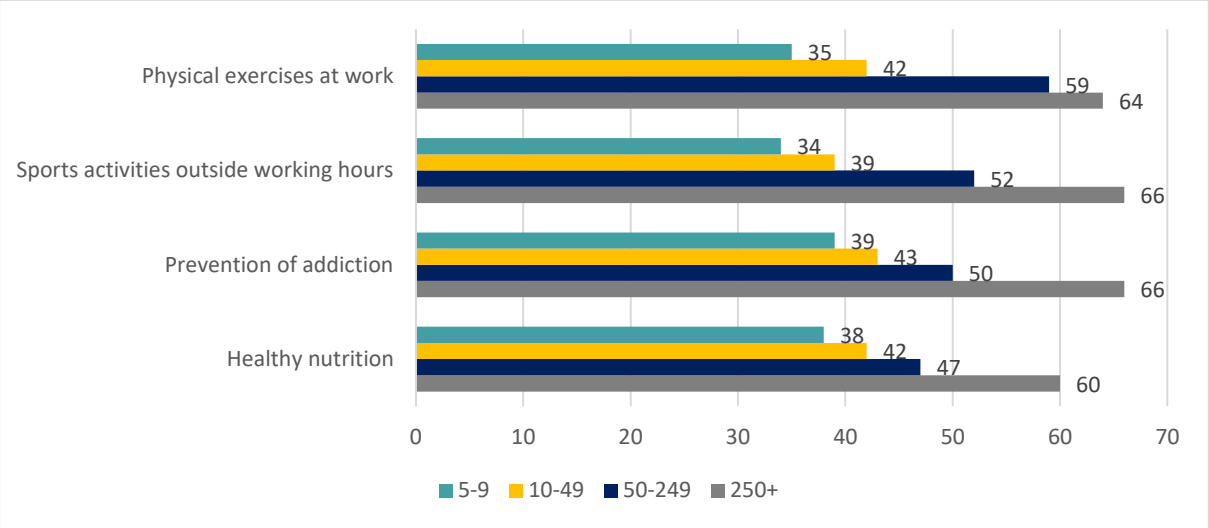
Figure 123: HeSCare sector establishments indicating measures for health promotion, by subsector, EU-27, 2019 (%)



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

The data indicate a positive association between establishment size and the use of general health promotion measures. For example, measures related to the promotion of physical exercises at work are only taken by 35% of micro establishments (5 to 9 employees), compared with 64% of large-scale establishments, where this pattern is also visible amongst other measures (Figure 124).

Figure 124: HeSCare sector establishments indicating measures for health promotion, by size, EU-27, 2019 (%)



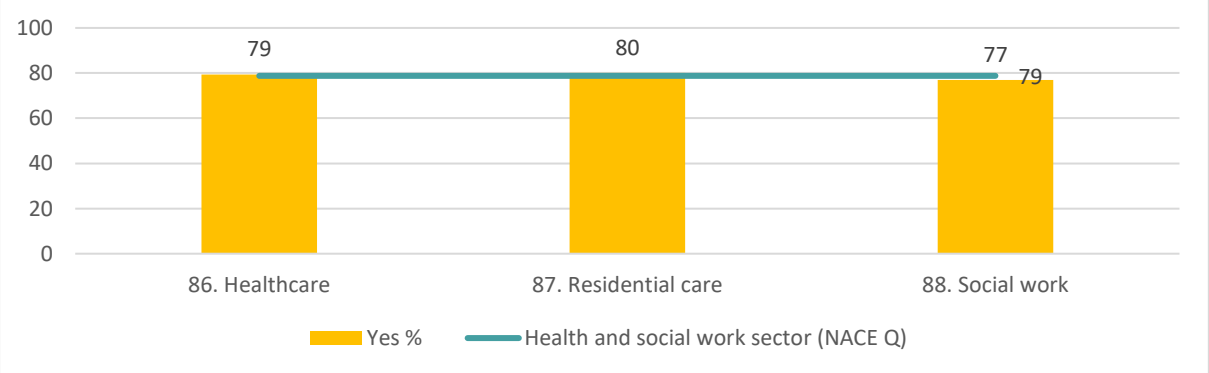
Source: Panteia based on ESENER-2019
Base: All HeSCare sector establishments in the EU-27.

4.4 Use of health and safety services and other external providers, access to external sources of OSH information

4.4.1 Arrangement of regular medical examinations to monitor the health of employees

ESENER-19 data provide information regarding the arrangement of regular medical examinations to monitor the health of employees. ESENER-19 data show that 79% of HeSCare sector establishments regularly arranged this type of medical examinations (Figure 125). This percentage is higher than the share of the total European economy on average (74%). At the subsector level, there are no notable differences between the various subsectors regarding arranging medical examinations.

Figure 125: Percentage of HeSCare sector establishments that arrange regular medical examinations to monitor the health of employees, by subsector, EU-27, 2019 (%)

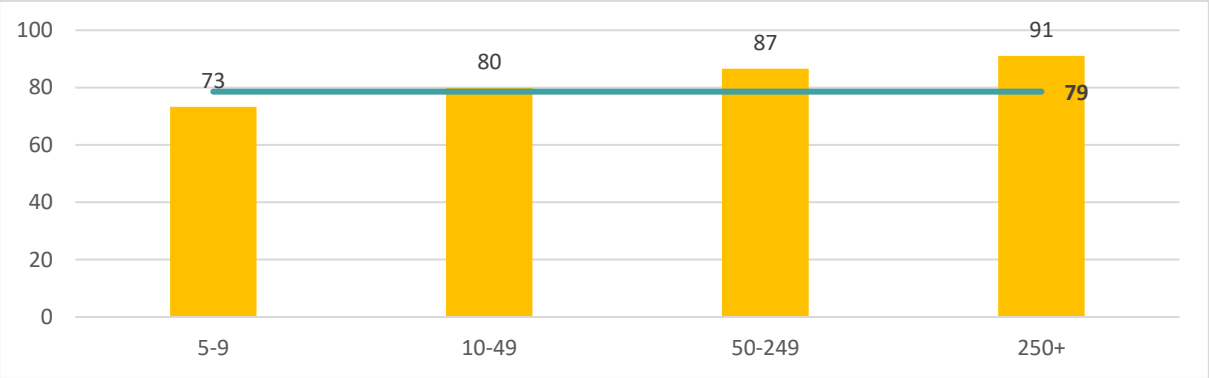


Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

Larger establishments (250 or more employees) are the most likely to arrange medical examinations to monitor the health of their employees (Figure 126). Micro establishments (5-9 employees) are the least likely to do so. At country level, 100% of HeSCare sector establishments in Hungary, Latvia and Slovenia indicate that they arrange medical examinations to monitor the health of their employees (see Figure 127). Only 12% of Dutch establishments and 13% of Danish establishments

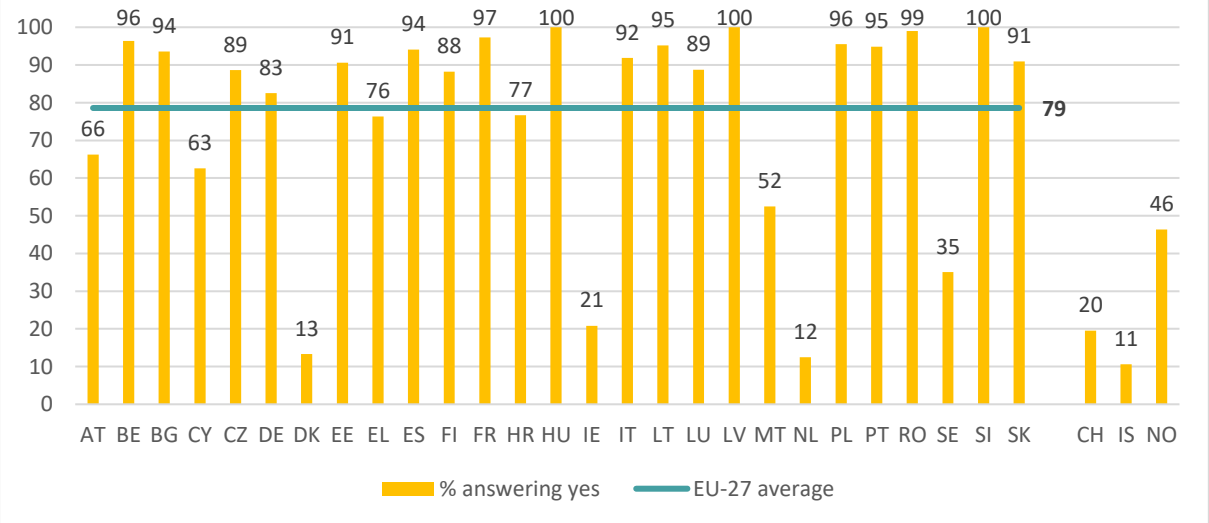
indicated this. These differences can be due to the organisation of occupational medical services. For instance, in the Netherlands the focus is on return-to-work processes. In Denmark, employers seldom hire occupational medicine services: occupational medicine wards are available in regional hospitals and can be consulted in cases of issues.

Figure 126: Percentage of HeSCare sector establishments that arrange regular medical examinations to monitor the health of employees, by size, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

Figure 127: Percentage of HeSCare sector establishments that arrange regular medical examinations to monitor the health of employees, by country, EU-27 (+ CH, IS and NO), 2019 (%)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27, Switzerland, Iceland and Norway.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

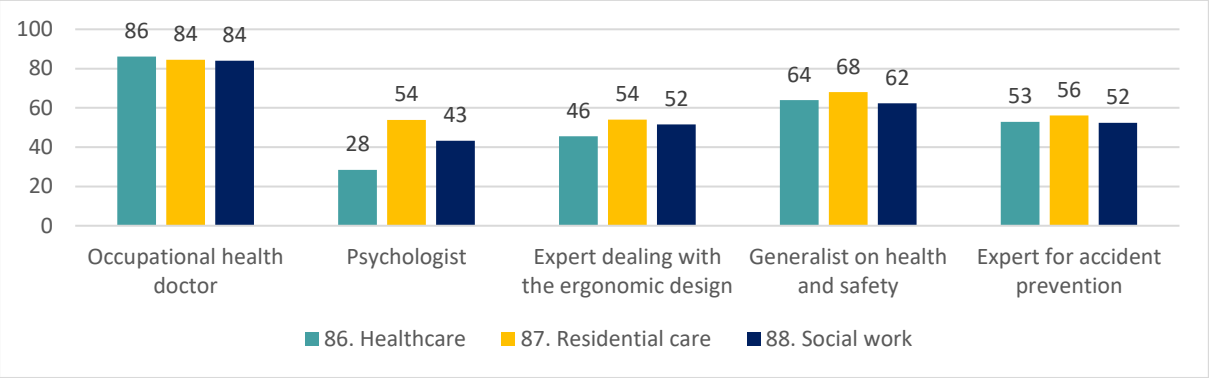
4.4.2 Use of health and safety services

Enterprises in the HeSCare sector use several health and safety services, such as occupational health doctors, psychologists and accident prevention experts. Regarding the use of different health and safety services (either in-house or contracted externally), the ESENER-19 survey results show that 85% of all establishments in the HeSCare sector use the services of an occupational health physician, 65% of establishments use the services of a generalist on health and safety and 53% use an expert for accident prevention. In contrast to these figures, 50% of establishments in the sector use the services of an expert dealing with the ergonomic design and set-up of workplaces and only 39% uses the services of a psychologist. In all cases, the use of these different health and safety services is similar to (or above) the EU-27 average for all establishments across all sectors. For instance, 76% of all EU-27

establishments use the services of an occupational health physician (in comparison to 85% in the HeSCare sector), whereas 61% use the services of a generalist on health and safety (65% in the HeSCare sector).

At the subsector level, establishments in residential care are much more likely to use the services of a psychologist when compared to the healthcare subsector (54% and 28%, respectively) (see Figure 128). In most cases, residential care establishments are more likely to use health and safety services (apart from an occupational health doctor).

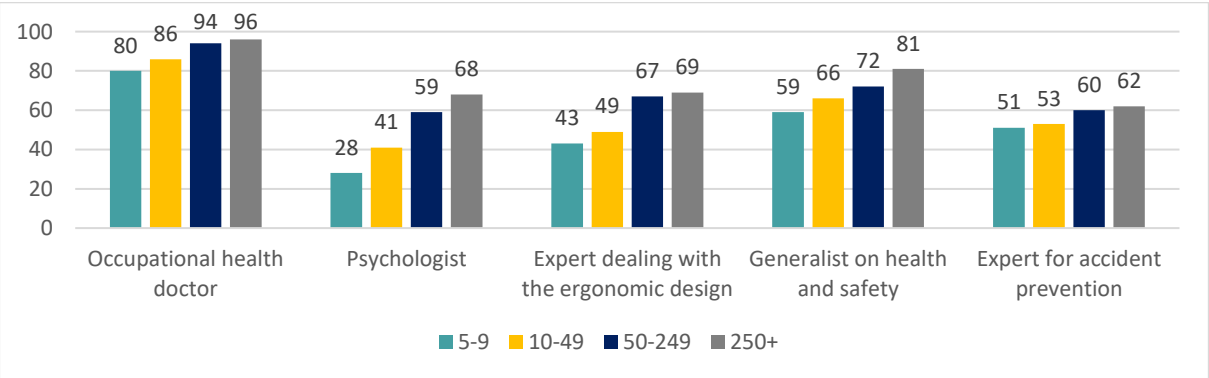
Figure 128: Percentage of HeSCare sector establishments which indicate health and safety services used (in-house or contracted externally), by subsector, EU-27, 2019 (%)



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

Larger establishments in the HeSCare sector make a greater use of different types of health and safety services (as shown in Figure 129). For instance, 81% of the largest establishments use a generalist on health and safety, compared with 59% of micro-establishments. Additionally, 96% of the largest establishments count on the services of an occupational health doctor, where this share is lower for micro establishments (80%).

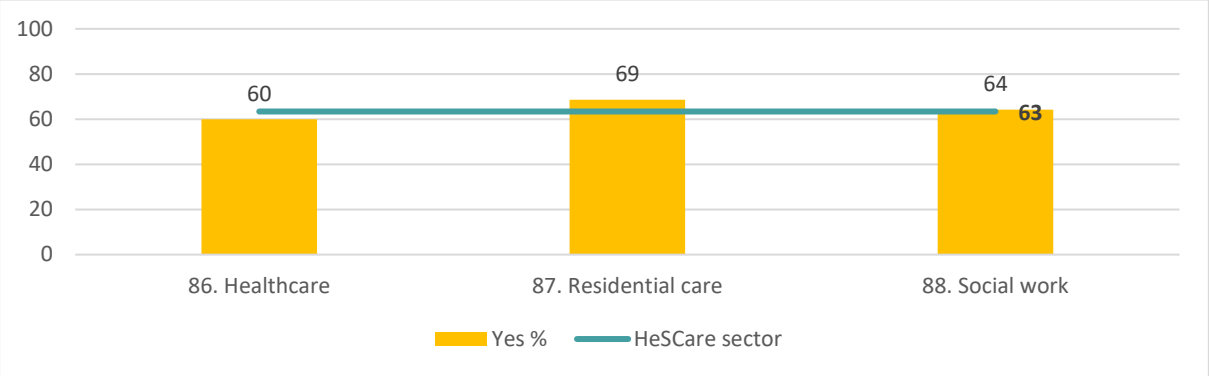
Figure 129: Health and safety services used (in-house or contracted externally) by HeSCare sector establishments, by size, EU-27, 2019 (%)



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

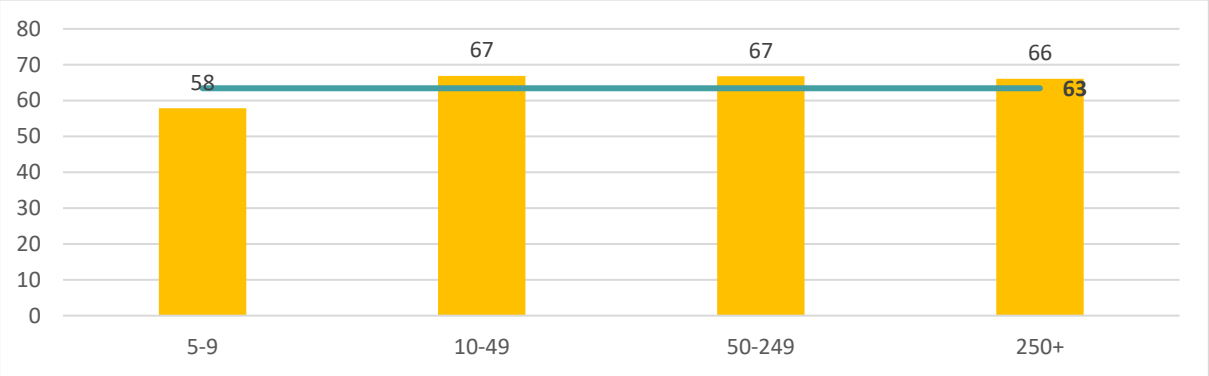
Data from ESENER-19 show that 63% of establishments in the HeSCare sector used the services of an external provider to support them in their health and safety tasks, which can be seen in Figure 130. This percentage is slightly higher than the EU-27 average across all sectors (62%), but slightly less than in other sectors such as Mining or Manufacturing (above 70% in both cases). There are some differences at the subsector level, with 69% of residential care establishments using the services of an external provider to support health and safety tasks, compared to 60% in healthcare. There are no major differences between enterprise size and the use of external services, with the exception of micro enterprises (as shown in Figure 131). It is possible that larger establishments are more likely to have a well-established OSH department/expert/internal safety officer.

Figure 130: Percentage of HeSCare establishments that have used the services of any external provider to support them in their health and safety tasks in the last three years, by subsector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

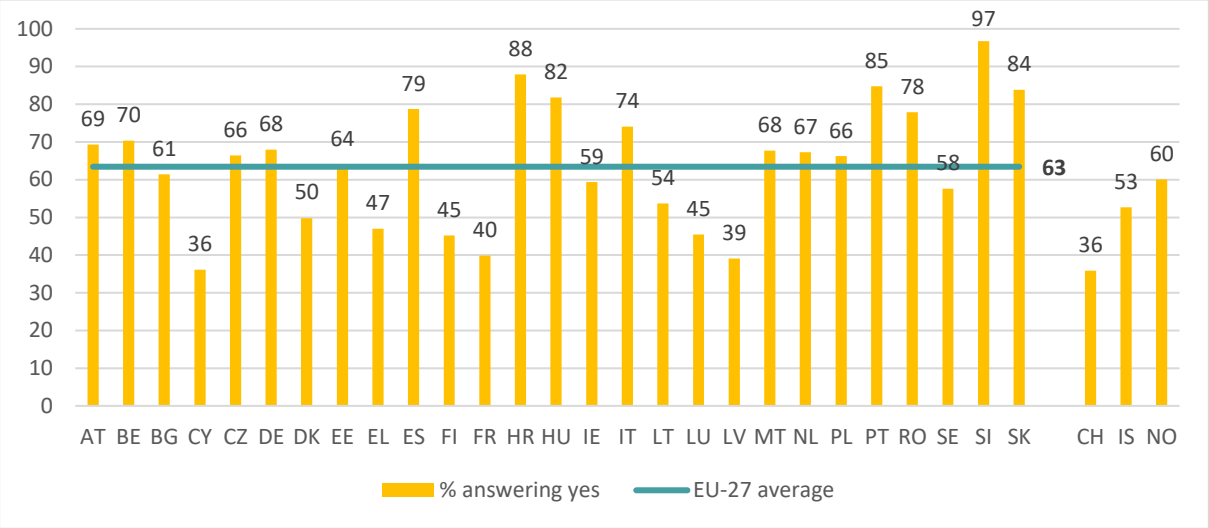
Figure 131: Percentage of HeSCare establishments that have used the services of any external provider to support them in their health and safety tasks, by size, EU-27, 2019 (%)



Source: Panteia/ based on ESENER-19
Base: All HeSCare establishments in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

At country level, Figure 132 shows that Slovenian establishments in the HeSCare sector are the most likely to use external providers to support health and safety tasks (97%), with Cypriot and Latvian establishments the least likely (36% and 39%, respectively).

Figure 132: Percentage of HeSCare establishments that have used the services of any external provider to support them in their health and safety tasks, by country, EU-27 (+ CH, IS and NO), 2019 (%)



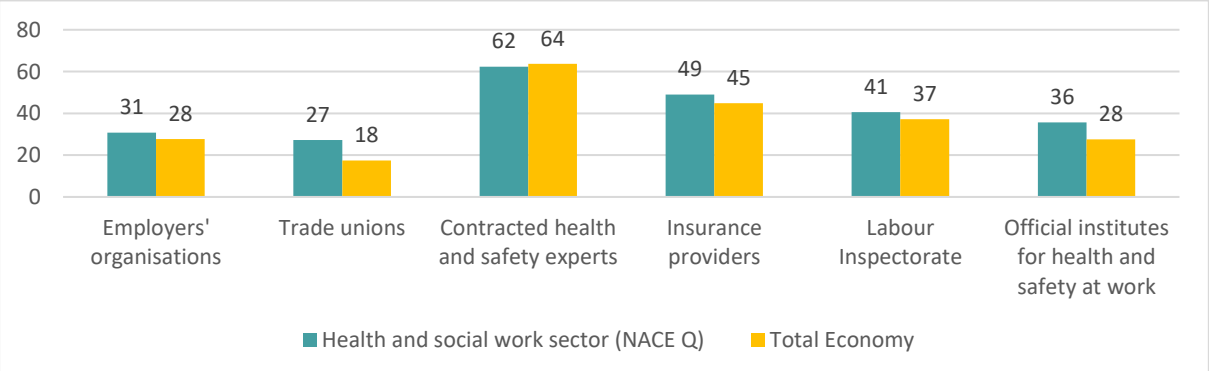
Source: Panteia based on ESENER-19
Base: All HeSCare establishments in the EU-27, Switzerland, Iceland and Norway.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

4.4.3 Use of OSH information from other organisations

The use of OSH information from other organisations for OSH management and for health and safety information can be a convenient low-effort and cost-efficient method to collect relevant information for an establishment. Data from the ESENER-19 survey show that establishments in the HeSCare sector use health and safety information from different types of organisations (Figure 133). However, there are notable differences regarding the popularity and use of such sources.

62% of establishments have contracted health and safety experts to provide them with OSH-related information, 49% of establishments in the sector have contacted insurance providers, and 41% the labour inspectorate. 31% of establishments obtained information from employers' organisations, 36% from official institutes for health and safety at work and only 27% of establishments from trade unions. The comparison with the EU-27 average for all sectors does not show great differences, although establishments in the HeSCare sector are more likely to use information from different sources when compared with the total EU economy (except for contracted health and safety experts).

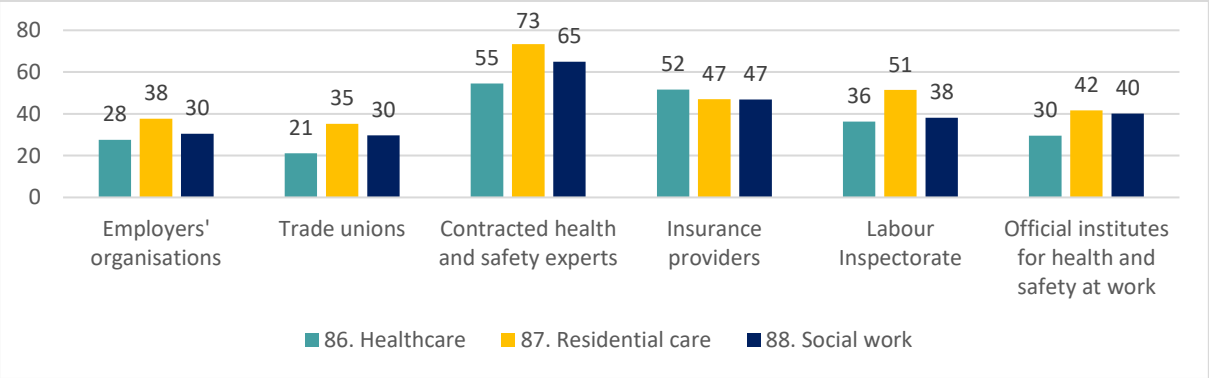
Figure 133: Percentage of establishments that used health and safety information from external organisations, by organisation, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: All establishments in the EU-27.

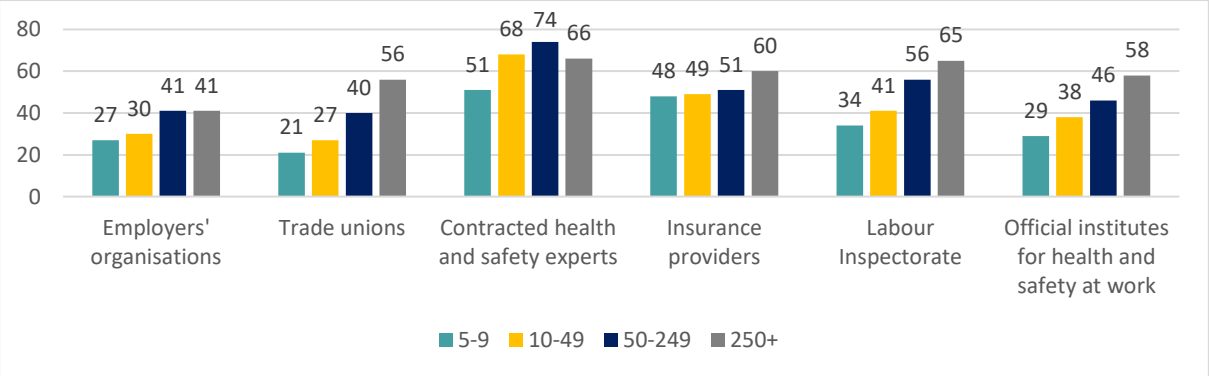
At the subsector level, establishments in the residential care subsector are most likely to use various sources of information from external organisations. 73% of residential care establishments indicated that they use information from contracted health and safety experts (compared with 55% in healthcare) and 51% use information from labour inspectorates (compared with 36% in the healthcare subsector). Establishments in the healthcare subsector are the least likely to use information from trade unions (only 21%) (Figure 134). When looking at establishment size, the data from ESENER-19 tend to show that there is a positive relationship between enterprise size and the use of OSH information from other sources (as shown in Figure 135).

Figure 134: Percentage of HeSCare sector establishments that used health and safety information from external organisations, by subsector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27.

Figure 135: Percentage of HeSCare sector establishments that used health and safety information from external organisations, by size, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27.

At country level, there are differences in the use of health and safety information from external organisations (shown in Table 18). For instance, 62% of establishments in Slovenia use information from employers' organisations, compared with only 8% in Estonia. Trade unions play a prominent role in the provision of OSH information in Denmark and Sweden (77% of establishments in these countries indicated they used this information), where this was only 3% in Hungary and 4% in Estonia. Labour inspectorates and official OSH institutes play the largest role in Lithuania in providing health and safety information in contrast to only 13% of Italian establishments.

Table 18: Percentage of establishments in the HeSCare sector that used health and safety information from external organisations, by country, EU-27 (+ CH, IS and NO), 2019 (%)

	Employers' organisations	Trade unions	Contracted health and safety experts	Insurance providers	Labour Inspectorate	Official institutes for health and safety at work
AT	46	33	66	34	71	37
BE	39	33	79	39	62	44
BG	18	18	48	39	68	46
CY	25	35	58	42	71	36
CZ	10	11	78	18	18	22
DE	35	18	63	84	30	31
DK	36	77	59	11	67	23
EE	8	4	41	14	74	45
EL	18	26	44	31	30	32
ES	24	21	80	72	33	21
FI	55	58	44	49	66	76
FR	16	29	42	16	37	51
HR	30	20	96	35	34	33
HU	14	3	70	7	12	14
IE	32	20	60	48	70	44
IT	22	18	80	3	13	23
LT	55	28	75	73	98	82
LU	28	37	52	28	64	36
LV	39	36	43	32	55	24
MT	55	28	84	50	78	60
NL	44	28	57	34	42	44
PL	20	27	73	52	66	48
PT	10	10	71	39	49	30
RO	32	20	80	37	78	35
SE	53	77	63	24	84	32
SI	62	40	94	46	71	58

	Employers' organisations	Trade unions	Contracted health and safety experts	Insurance providers	Labour Inspectorate	Official institutes for health and safety at work
SK	12	26	68	19	44	19
EU	31	27	62	49	41	36
CH	29	13	43	51	32	34
IS	7	31	33	7	64	23
NO	52	59	64	8	38	39

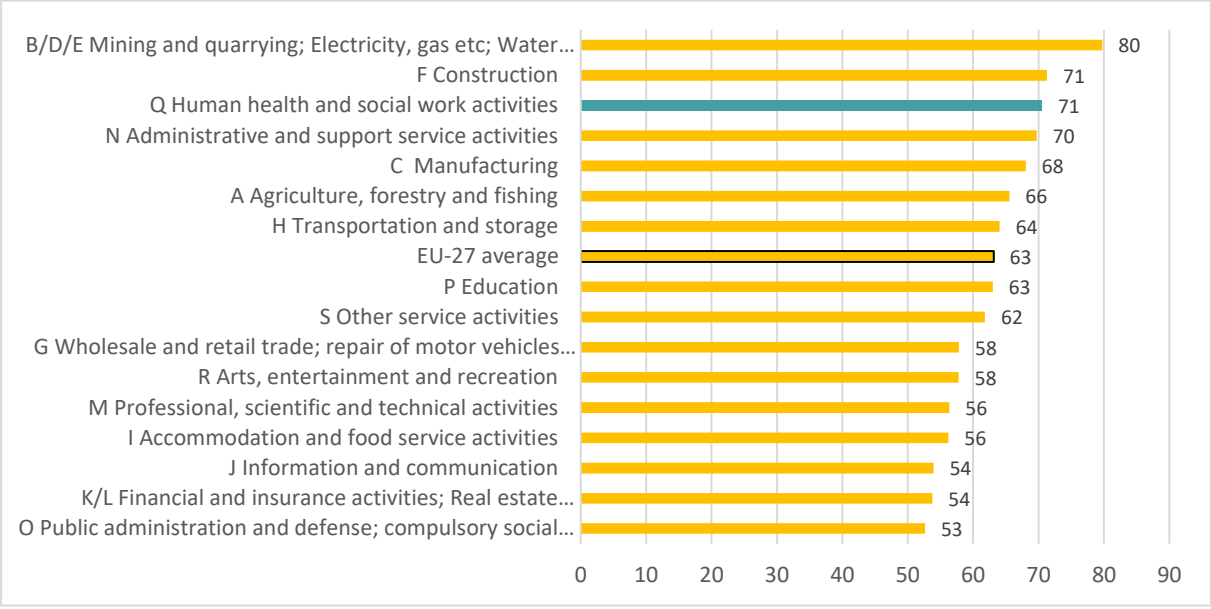
Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27.

4.5 Discussion on OSH issues at different levels

4.5.1 Management commitment: Discussion on OSH issues by top management

Management commitment can be considered an important element that explains the differences in the extent and importance of existing OSH practices within enterprises. Discussion on OSH issues by top management can be considered an indicator of management commitment to OSH issues. According to ESENER-2019, **71% of HeSCare sector establishments (only establishments with 20 or more employees) suggest that OSH issues are regularly discussed at the top-level management**, where this percentage is higher than the EU-27 average for all sectors (63%) (Figure 136).

Figure 136: Percentage of establishments in which health and safety issues are discussed regularly at the top level of management, by sector, EU-27, 2019 (%)

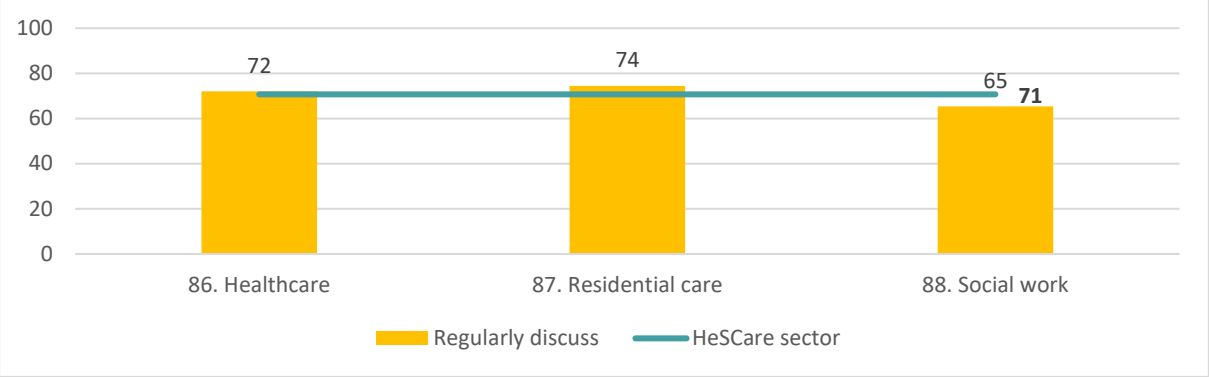


Source: Panteia based on ESENER-19
Base: Only establishments with 20 or more employees in the EU-27.

When compared with ESENER-2014, establishments were more likely in 2019 to have regular discussions of OSH issues at the top level of management (65% in 2014, compared with 71% in 2019). At the subsector level, establishments in residential care are most likely to regularly discuss

health and safety issues at the top level of management (74%), although there are no major differences (Figure 137).

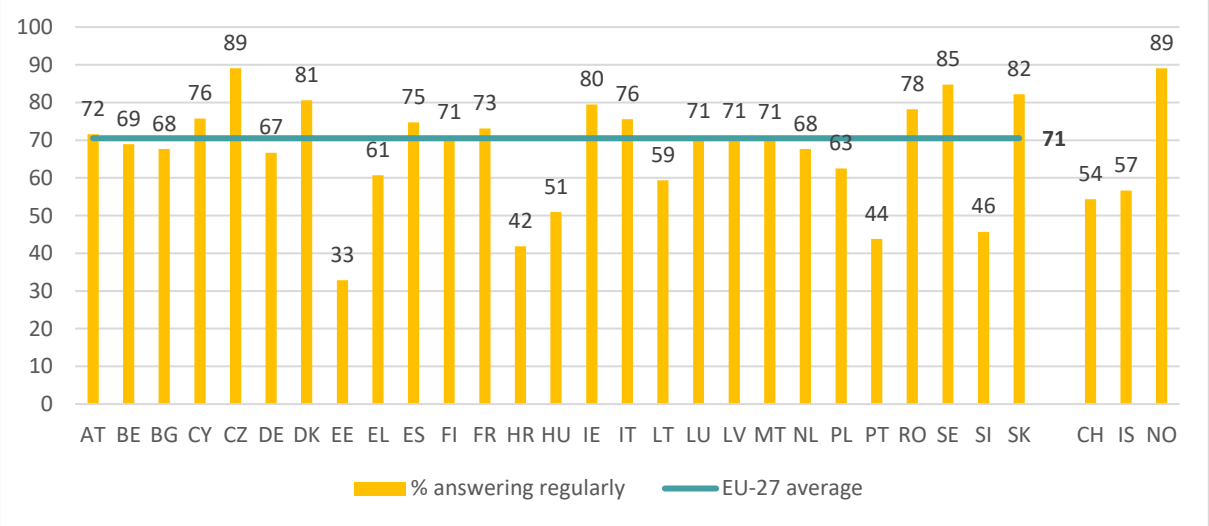
Figure 137: Percentage of HeSCare sector establishments in which health and safety issues are discussed regularly at the top level of management, by subsector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: Only HeSCare sector establishments with 20 or more employees in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

There are notable differences at Member State level, as shown in Figure 138. For instance, whereas 89% of Czech establishments in the HeSCare sector regularly discuss health and safety issues at the top level of management, this is only the case in 33% of Estonian establishments.

Figure 138: Percentage of establishments in which health and safety issues are discussed regularly at the top level of management, by country, EU-27 (+ CH, IS and NO), 2019 (%)



Source: Panteia based on ESENER-19
Base: Only HeSCare sector establishments with 20 or more employees in the EU-27, Switzerland, Iceland and Norway.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

Box 7: Further analysis of ESENER-19 data variables relating OSH management practices and types of establishment

Further analysis of ESENER-19 data variables related to attention given to OSH management and types of establishment (see Methodological appendix 2) show that:

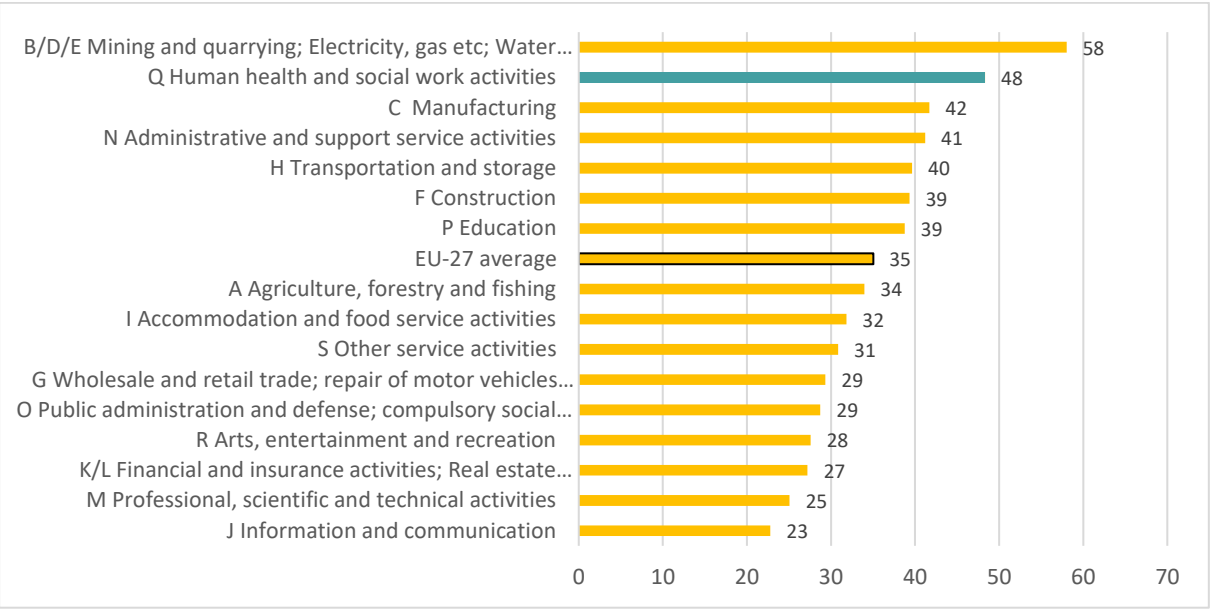
- Apart from the social work subsector, establishments that are multi-establishment organisations have better general OSH management practices than single establishments.
- In the social work subsector, there is a difference between the headquarters of multi-establishment organisations and subsidiary sites: interestingly, general OSH management is higher at subsidiary sites.

Source: Panteia based on ESENER-19

4.5.2 Discussion of OSH in staff or team meetings

The discussion of OSH issues at different levels in the establishment is another aspect related to OSH management. According to the ESENER-19 survey results, OSH issues are regularly discussed in staff or team meetings in 48% of HeSCare sector establishments, a percentage significantly higher than the EU-27 average for all sectors (35%) (Figure 139).

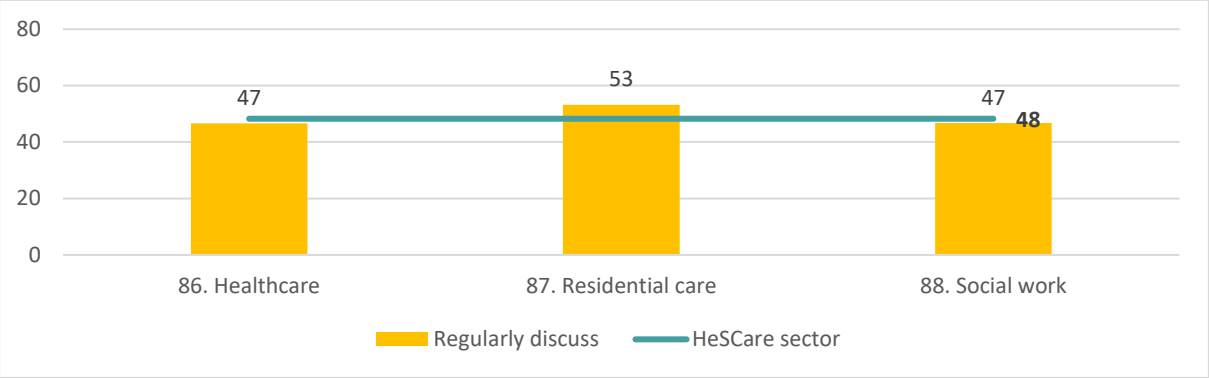
Figure 139: Percentage of establishments in which health and safety issues are discussed regularly in staff or team meetings, by sector, EU-27, 2019 (%)



Source: Panteia/ based on ESENER-19
Base: Only establishments with 20 or more employees in the EU-27.

At the subsector level, establishments in residential care are the most likely to regularly discuss health and safety issues in staff or team meetings (53%). This figure is 47% for both the healthcare and social work subsectors (Figure 140).

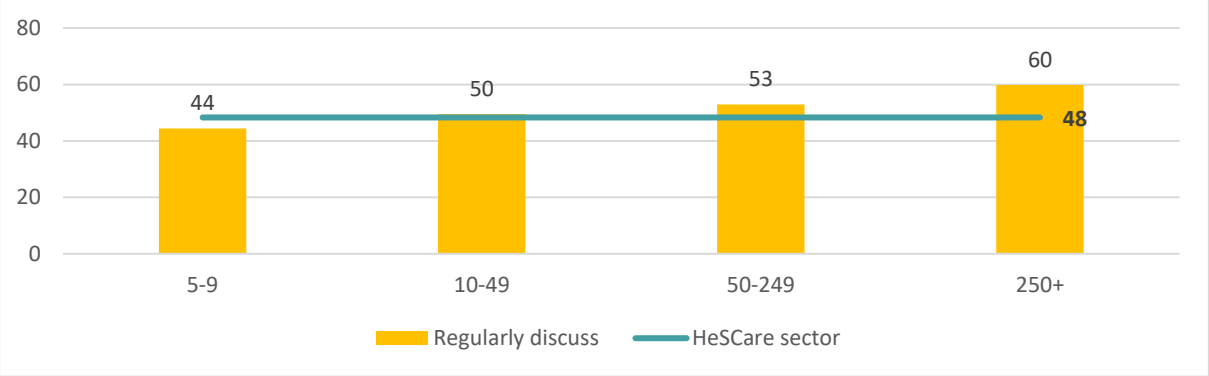
Figure 140: Percentage of HeSCare sector establishments in which health and safety issues are discussed regularly in staff or team meetings, by subsector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19.
Base: Only HeSCare sector establishments with 20 or more employees in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

Differences per establishment size show that larger HeSCare sector establishments are more likely to regularly discuss OSH issues in staff or team meetings. Compared with micro and small establishments (44%) 60% of establishments with 250 or more employees regularly discuss OSH (Figure 141).

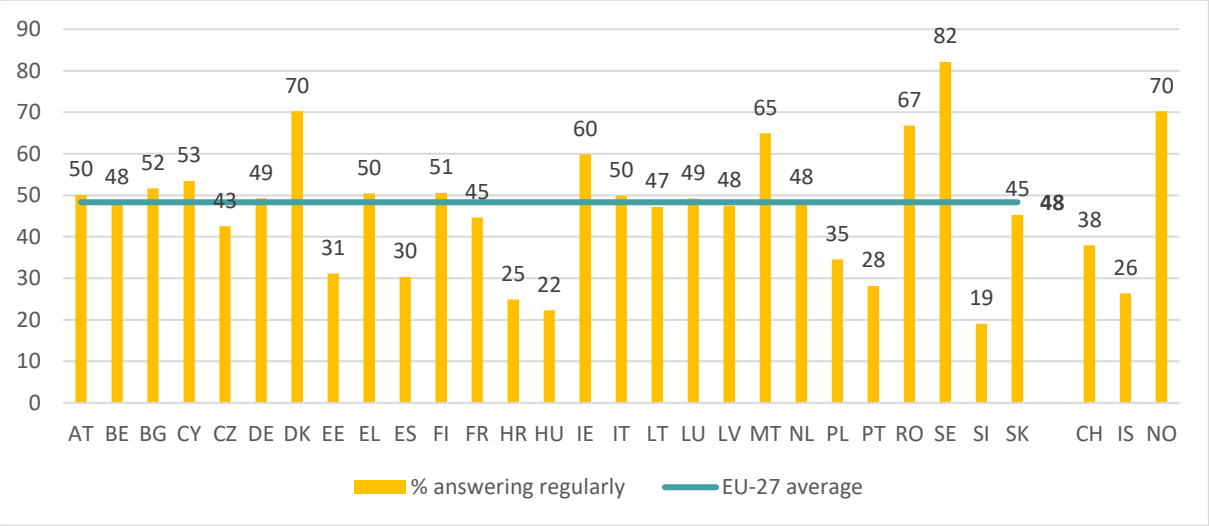
Figure 141: Percentage of HeSCare sector establishments in which health and safety issues are discussed regularly in staff or team meetings, by size, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: Only HeSCare sector establishments with 20 or more employees in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

When analysing the differences between countries, ESENER-19 data show several differences (as shown in Figure 142). Whereas 82% of establishments in Sweden and 70% of establishments in Denmark regularly discuss health and safety issues in staff or team meetings, this is only the case for 19% of establishments in Slovenia.

Figure 142: Percentage of HeSCare sector establishments in which health and safety issues are discussed regularly in staff or team meetings, by country, EU-27 (+ CH, IS and NO), 2019 (%)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments with 20 or more employees in the EU-27, Switzerland, Iceland and Norway.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

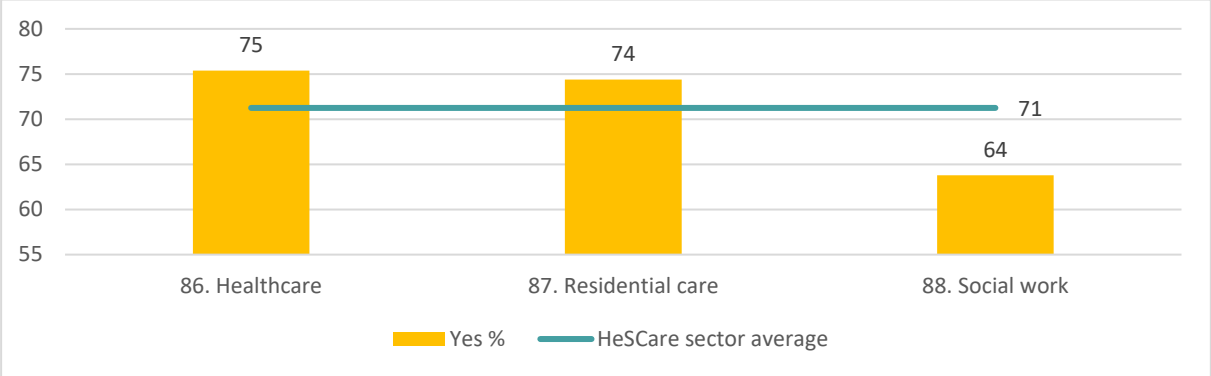
4.6 Training on health and safety issues

4.6.1 Management training

Employers have a responsibility to ensure all workers have access to relevant information on identifying existing and new OSH risks, that they understand the various measures in place to deal with these risks and have instructions to follow regarding emergency procedures. Some groups of workers have specific training needs, such as new recruits (especially if they are young or inexperienced), workers changing role or taking on extra responsibilities within the company or migrant workers coming from a third country. Managers and OSH representatives need to ensure that they are updated and have knowledge on changes and new developments (legislative, operational, guidelines etc.) in OSH that affect all levels and activities in the organisation/establishment.

The ESENER-19 data indicate that 75% of team leaders and line managers in healthcare establishments (20 < employees) receive training on how to manage health and safety in their teams, compared with the average for the total HeSCare sector (71%) (Figure 143) and the EU-27 average across all sectors (72%). Team leaders and line managers in establishments in the social work subsector are the least likely to receive training on OSH (64%).

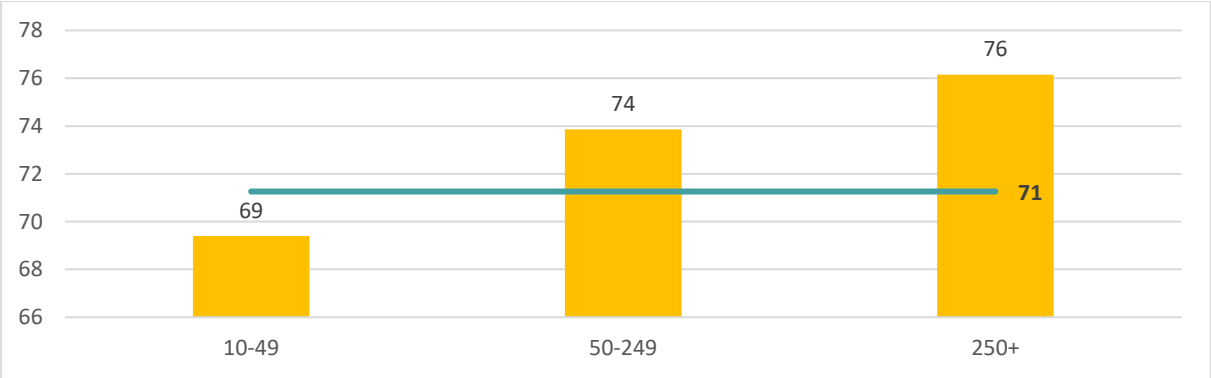
Figure 143: Percentage of HeSCare sector establishments in which team leaders and line managers receive any training on how to manage health and safety in their teams, by subsector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments with more than 20 employees in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

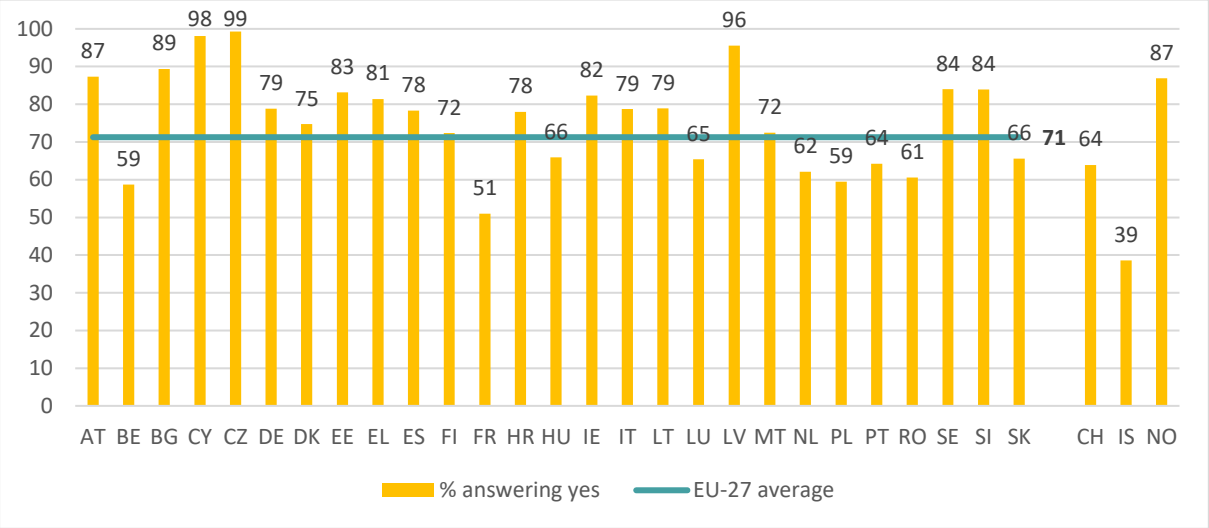
The results show that the participation in training activities amongst team leaders and line managers on how to manage health and safety in their teams increases slightly depending on the size of the establishment (Figure 144). Data by Member States show some differences (Figure 145). Although 99% of Czech establishments' team leaders and line managers receive training on how to manage health and safety in their teams, this percentage decreases to 51% in the case of France. Again, it is difficult to provide specific explanations for these country differences.

Figure 144: Percentage of HeSCare sector establishments in which team leaders and line managers receive any training on how to manage health and safety in their teams, by size, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments with more than 20 employees in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

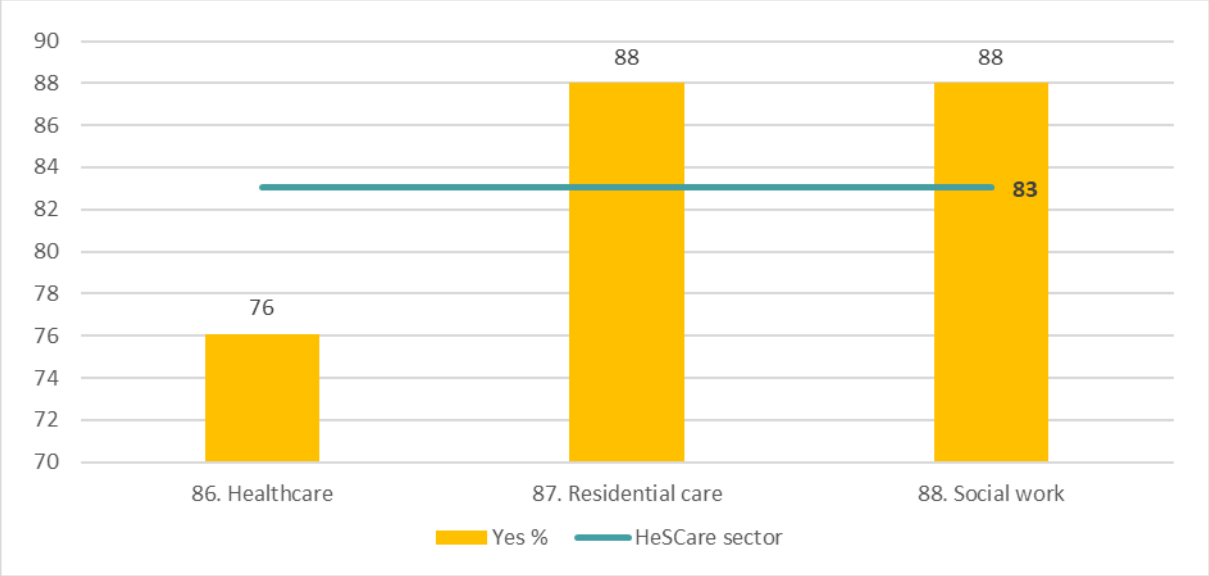
Figure 145: Percentage of HeSCare sector establishments in which team leaders and line managers receive any training on how to manage health and safety in their teams, by country, EU-27 (+ CH, IS and NO), 2019 (%)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments with more than 20 employees in the EU-27, Switzerland, Iceland and Norway.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

83% of establishments in the HeSCare sector indicated that health and safety representatives were provided with training during work time to help them perform their health and safety duties. This is approximately the same as the average for the economy as a whole. Establishments in the residential care and social work subsectors are more likely to provide health and safety representatives with training during work time (both 88%) (Figure 146).

Figure 146: Percentage of HeSCare sector establishments where the health and safety representatives were provided with any training during work time to help them perform their health and safety duties, by subsector, EU-27, 2019 (%)

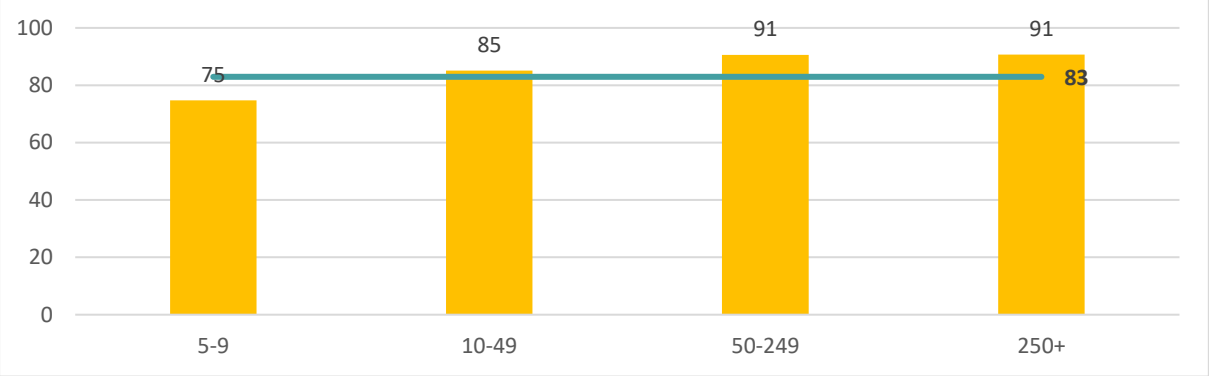


Source: Panteia based on ESENER-19
Base: Only HeSCare sector establishments with health and safety representatives in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

When considering the size of the establishment, larger establishments in the HeSCare sector are more likely to provide health and safety representatives with training during work time to help them perform

their health and safety duties (95%), whereas this percentage is 85% in small establishments (with 10 to 49 employees), and to 75% in micro establishments (with 5 to 9 employees) (Figure 147).

Figure 147: Percentage of HeSCare sector establishments where the health and safety representatives were provided with any training during work time to help them perform their health and safety duties, by size, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: Only HeSCare sector establishments with health and safety representatives in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

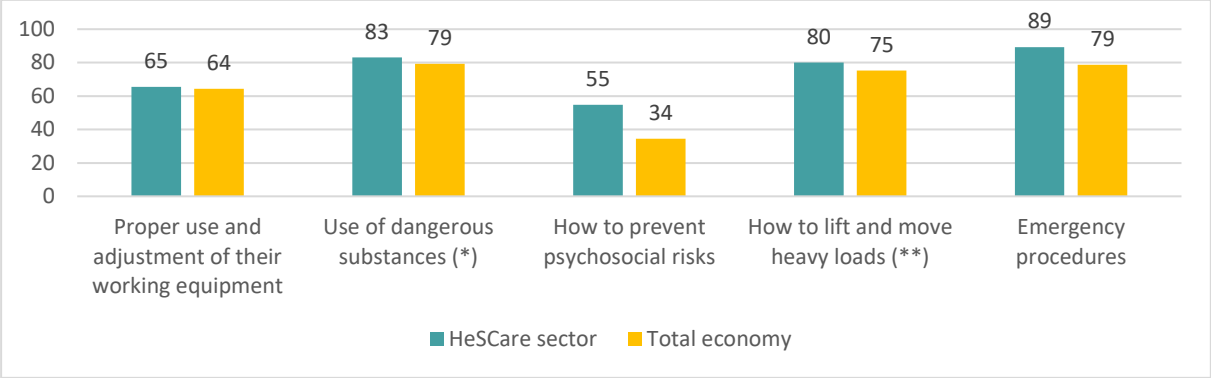
4.6.2 Employee training on OSH issues

Providing employees with training on OSH issues is essential for safeguarding employees' health, complying with regulations, enhancing productivity and promoting a positive workplace culture. Providing training on safety protocols, procedures, and identification and risk assessment enables employees to better navigate their work environment without compromising their well-being and contributes to reducing exposure to risks associated with work tasks. The EU and the Member States have established comprehensive legislation and regulations related to workplace safety and health, and employee training ensures that employees are aware of and comply with these legal requirements.

The ESENER-19 survey identifies the main OSH topics on which employees are trained. In this respect, 89% of establishments in the HeSCare sector provide employees with training in relation to emergency procedures, which is the highest share across all sectors in the EU-27 (Figure 148). 83% of enterprises whose employees are exposed to "chemical or biological substances" have offered training on the use of dangerous substances to their employees, and 65% of all establishments on the proper use and adjustment of their working equipment. By way of contrast, only 55% of HeSCare sector establishments provide training on psychosocial risk prevention (which is the highest across all sectors in the EU). In all cases, the figures for the HeSCare sector are somewhat higher than the EU-27 average for all sectors.

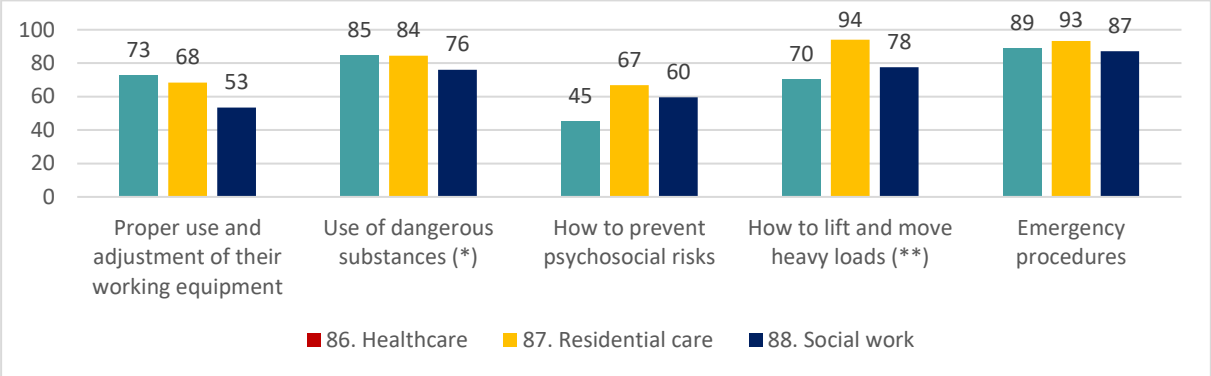
At the subsector level, there are some significant differences between the OSH related topics covered in training (Figure 149). Whereas 94% of establishments in the residential care subsector provide training to lift and move heavy loads, this is only the case in 70% of healthcare establishments. Residential 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).

Figure 148: OSH-related topics on which training has been provided to employees, by sector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: All 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".

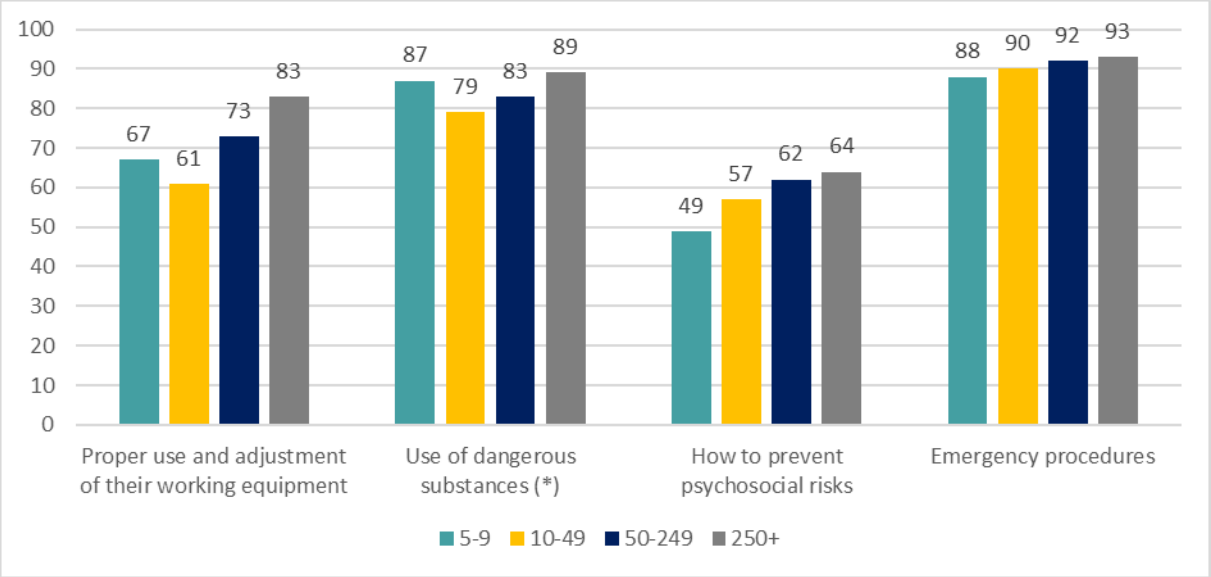
Figure 149: OSH-related topics on which training has been provided to employees in HeSCare sector establishments, by subsector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
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".

In most cases there is a relationship between the size of the establishment and the likelihood that a certain training topic is covered (as shown in Figure 150). However, the one exception is the use of dangerous substances, which is reported highly by micro establishments (87%).

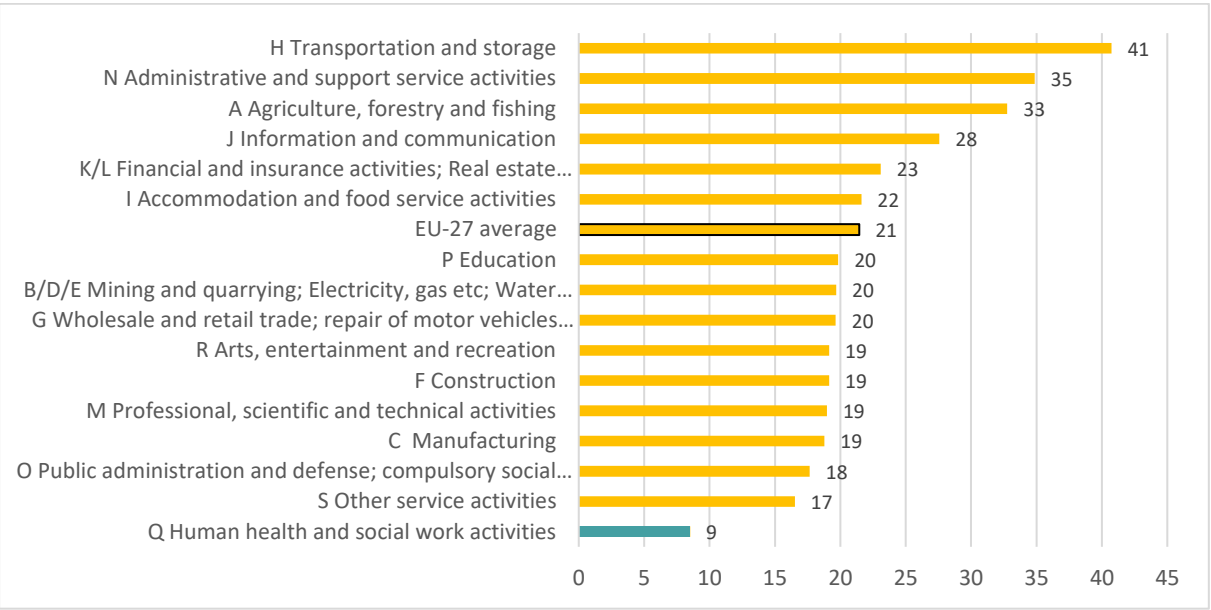
Figure 150: OSH-related topics on which training has been provided to employees in HeSCare sector establishments, by size, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27.
(*) Base: Only HeSCare sector establishments exposed to "chemical or biological substances".

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 Figure 151).

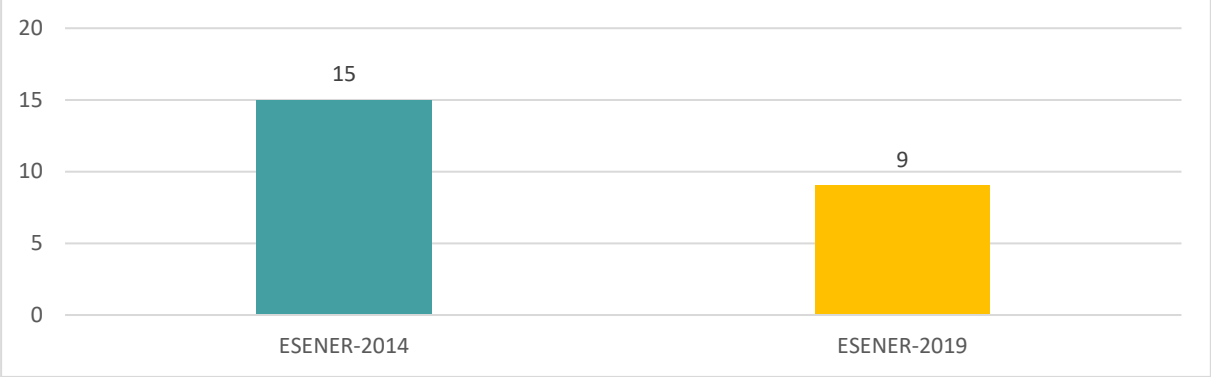
Figure 151: Whether training to employees on OSH-related topics is provided in other languages, by sector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: All establishments in the EU-27.

Results from ESENER-2014 and ESENER-19 show a **decline among establishments over recent years in providing training in other languages**, from 19% in 2014 to 15% in 2019 (Figure 152).

Figure 152: Whether training to employees in HeSCare sector establishments on OSH-related topics is provided in other languages, EU-27, 2014 and 2019 (%)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27.

5. Main drivers and barriers for OSH management in the HeSCare sector

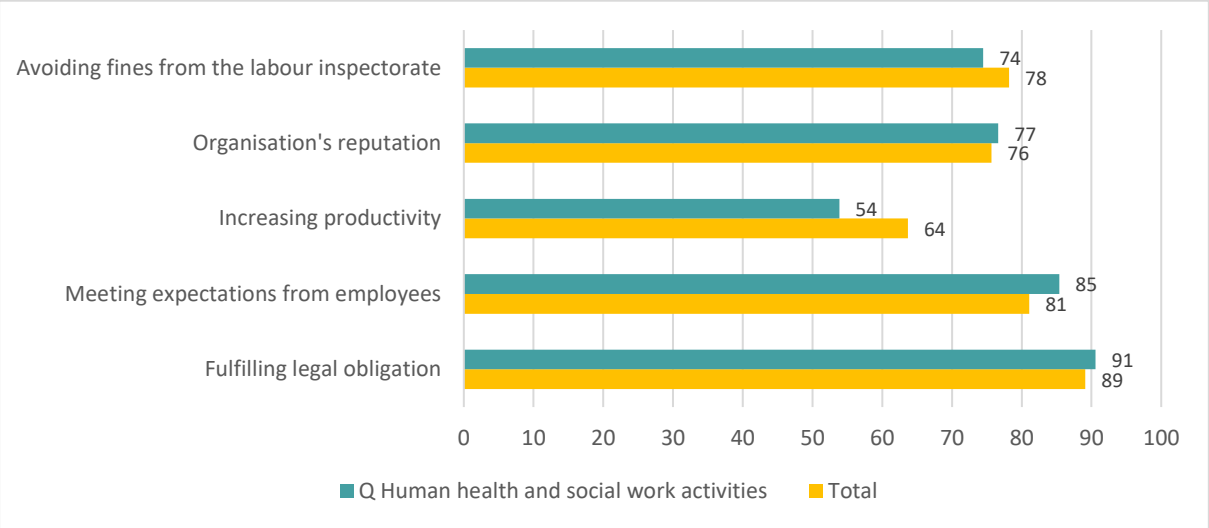
This chapter presents the main drivers and barriers regarding OSH management practices in the HeSCare sector. This includes the main reasons that motivate sector enterprises to engage in OSH practices and the main difficulties that enterprises report in addressing health and safety issues in general as well as in dealing with psychosocial risks in their establishments. Additional elements that influence OSH management practices (such as COVID-19, the ageing population, labour shortages and digitalisation) are also presented in this chapter.

5.1 Drivers for OSH management

5.1.1 Reasons that motivate enterprises to address OSH issues

There are several reasons why HeSCare sector establishments engage in OSH-related issues. According to ESENER-2019**, the two most important reasons mentioned are the fulfilment of existing legal obligations and the importance of meeting the expectations of sector employees** (91% and 85%, respectively) (as shown in Figure 153). Other reasons are the importance of maintaining the organisation's reputation and avoiding fines from the labour inspectorate (77% and 74%, also respectively). By way of contrast, the reason related to maintaining or increasing productivity is suggested by half (54%) of the sector establishments.

Figure 153: Reasons given by establishments for addressing health and safety, by sector, EU-27, 2019 (% indicating major reason)



Source: Panteia based on ESENER-19
Base: All establishments in the EU-27.

Box 8: Further analysis of ESENER-19 data variables relating to the reasons that motivate enterprises to address OSH issues

Further analysis of ESENER-19 data variables relating to the reasons that motivate enterprises to address OSH issues (see Methodological appendix 2) show that:

- Across all HeSCare subsectors, a significant reason for attention to OSH management is meeting expectations from employees or their representatives. This suggests that employee involvement and feedback play a crucial role in shaping OSH practices in the HeSCare sector.
- In the healthcare and residential care subsectors, another important motivation for OSH management is the need to increase or maintain productivity. This indicates that ensuring a safe working environment not only protects employees but also contributes to the efficient functioning of the establishment.
- In contrast to the healthcare and residential care subsectors, establishments in the social work subsector are motivated by the desire to avoid fines and sanctions from the labour inspectorate. This suggests that regulatory compliance is a key driver of OSH practices in this particular subsector.
- Overall, the findings highlight the multifaceted nature of motivations behind OSH management practices in the three HeSCare subsectors. While meeting employee expectations is a consistent factor across all subsectors, additional motivations such as productivity concerns and regulatory compliance vary between subsectors. Understanding these motivations can help inform targeted strategies for improving OSH practices and ensuring the well-being of workers across the different subsectors.

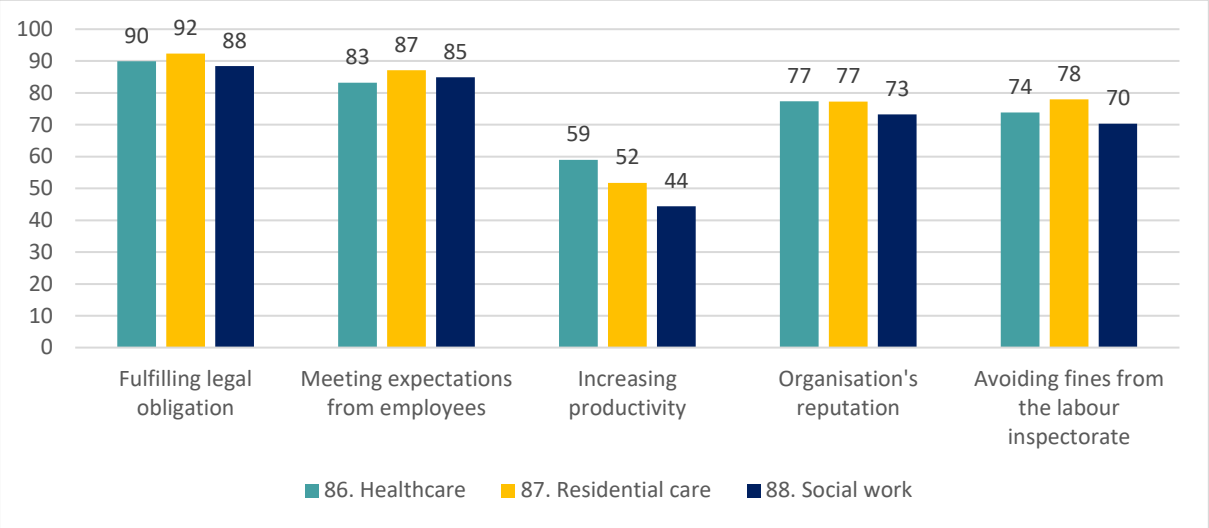
Source: Panteia based on ESENER-19

The available literature on the topic also identified existing legislation and reputation as the most important drivers for addressing OSH issues (EU-OSHA, 2022a). The results show that legislation should be viewed more as an opportunity tool for improving OSH-related issues and upgrading the situation of workers rather than a tool for sanctioning (EU-OSHA, 2021a). In this sense, the EU has developed in the last decades a wide array of EU OSH-related legislation (with especial reference to the European Framework Directive 1989/391/EEC) that has established the basis of OSH management, including the responsibility of the employer, rights and duties of the employees, requirement of continuous risk assessment and workplace health and safety representation, as well as the prevention and management of specific hazards at the workplace.

The comparison of all sectors shows that the **HeSCare sector is slightly more sensitive to reasons related to the fulfilment of legal obligations, the need to meet expectations from employees and the organisation's reputation**. Reputation is increasingly viewed by organisations as a key tool not only to avoid possible (monetary) sanctions but also as a non-monetary reward for being positively recognised in the sector and avoid scandals and stigma (Bevan et al, 2019). By way of contrast, reasons related to **avoiding fines or increasing productivity are less important** for the HeSCare sector establishments than for the total economy. Some literature also identifies one specific driver in the HeSCare sector in comparison to other economic sectors, namely, the ingrained sector culture of caring and of human relations, which results in a goodwill on the part of staff and a further commmitment with the health and well-being of personnel.

Meanwhile, the comparison between HeSCare subsectors shows that the order and importance of the different reasons are relatively similar amongst the different subsectors (Figure 154). If any, it is relevant to see that the social work subsector is particularly less concerned with reasons related to productivity increases, reputation of the establishment and of issues related to fines when compared with the other subsectors.

Figure 154: Reasons given by HeSCare sector establishments for addressing health and safety, by subsector, EU-27 (% indicating major reason)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27.

Box 9: Further analysis of ESENER-19 data variables relating to motivations in establishment for general and psychosocial OSH Management

Further analysis of ESENER-19 data variables relating to the reasons that motivate enterprises to address OSH issues (see Methodological appendix 2) show that:

- Across all three HeSCare subsectors and the total economy, meeting expectations from employees or their representatives emerges as a significant motivator for attention to both general and psychosocial OSH management. This indicates the consistent importance of employee involvement and feedback in shaping OSH practices.
- While meeting employee expectations is consistent, other motivators for attention to psychosocial OSH management vary across subsectors:
  - In the healthcare subsector, increasing or maintaining productivity is linked to attention given by establishments to psychosocial OSH management. This suggests that efforts to enhance psychosocial well-being are seen as beneficial for productivity in this subsector.
  - In the social work subsector and the total economy, maintaining the establishments reputation emerges as an indicator of attention given to psychosocial OSH management. This highlights the importance of public perception and organisational image in driving efforts to address psychosocial risks.
  - These findings underscore the importance of considering subsector-specific factors when designing strategies to improve psychosocial OSH management. Understanding these differences can inform targeted interventions aimed at promoting psychosocial well-being in the workplace.

Source: Panteia based on ESENER-19

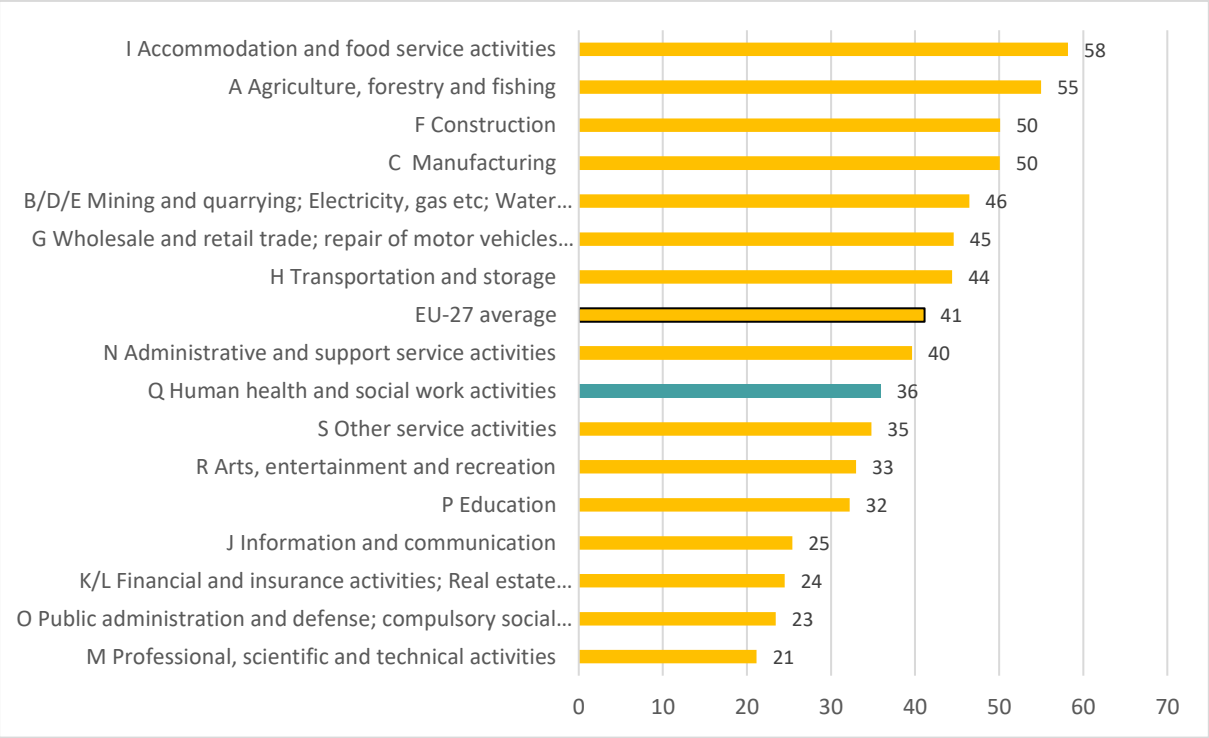
The existing literature also reveals that the possible negative economic consequences of failing to implement good OSH policy can act as an additional driver for addressing OSH issues within establishments. A lack of proper OSH management can result in disturbance in work due to injured or absent workers, low productivity and a decrease in the number of working days (ILO, 2016). EU-OSHA has estimated that in 2019, the economic burden of work-related injuries and disease varies between different EU Member States and ranges between 2.9% GDP in Finland to 10.2% GDP in Poland (EU-OSHA, 2019). Employers can also decide to implement OSH management to prevent future spending on compensation for employees injured at work (OECD, 2022).

5.1.2 Visits of labour inspectorates

A labour inspection can play a twofold role. On the one hand, it supervises the enforcement of existing legal provisions, particularly with regard to working and employment conditions and OSH issues, basically via the development of routine inspections or the investigation of serious cases (coercive role). On the other hand, a labour inspection provides relevant information and advice to ensure that these existing legal provisions are effectively and properly fulfilled by enterprises and establishments, including the development of specific campaigns and other awareness raising activities (facilitator role) (ILO, 2012; ETUI, 2016; EU-OSHA, 2023b).

According to ESENER-2019, **36% of HeSCare sector establishments have been visited by the labour inspectorate in the last three years in order to check health and safety conditions, where this percentage is lower than the EU-27 average for all sectors** (41%), and clearly below the percentages available in other sectors such as accommodation and food service activities; agriculture, forestry and fishing; or construction, manufacturing or mining activities (Figure 155).

Figure 155: Percentage of establishments indicating they have been visited by the labour inspectorate in the last 3 years, by sector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: All establishments in the EU-27.

The data show that relatively more establishments in residential care have been visited by labour inspectorate services compared with the other HeSCare subsectors, namely healthcare and social work activities (33 and 31%, respectively) (Figure 156).

Box 10: Further analysis of ESENER-19 data variables relating to visits from the labour inspectorate and attention given to OSH Management

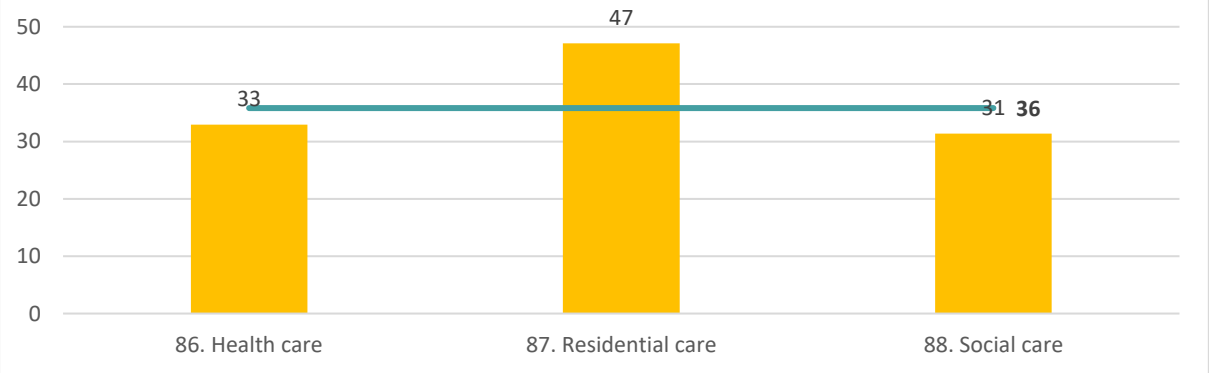
Further analysis of ESENER-19 data variables relating to the effects that visits from the labour inspectorate have on the attention given to OSH Management (see Methodological appendix 2) show that:

- Visits from the labour inspectorate in the last three years are strongly associated with attention to general OSH management across all three subsectors of HeSCare and the total economy. This suggests that regulatory oversight plays a significant role in promoting adherence to OSH standards and practices.
- Interestingly, visits from the labour inspectorate play a less significant role in attention given to psychosocial OSH management compared to general OSH management. Specifically, the link between visits from the labour inspectorate and attention given to psychosocial OSH management is notable only in the healthcare subsector.
- These findings suggest that while labour inspections are effective in encouraging attention to general OSH concerns, their impact on addressing psychosocial OSH risks may be less pronounced. This highlights the need for targeted strategies and interventions specifically aimed at promoting psychosocial well-being in the workplace. Additionally, the variation in the impact of labour inspectorate visits across subsectors underscores the importance of subsector-specific considerations in OSH management practices.

Source: Panteia based on ESENER-19

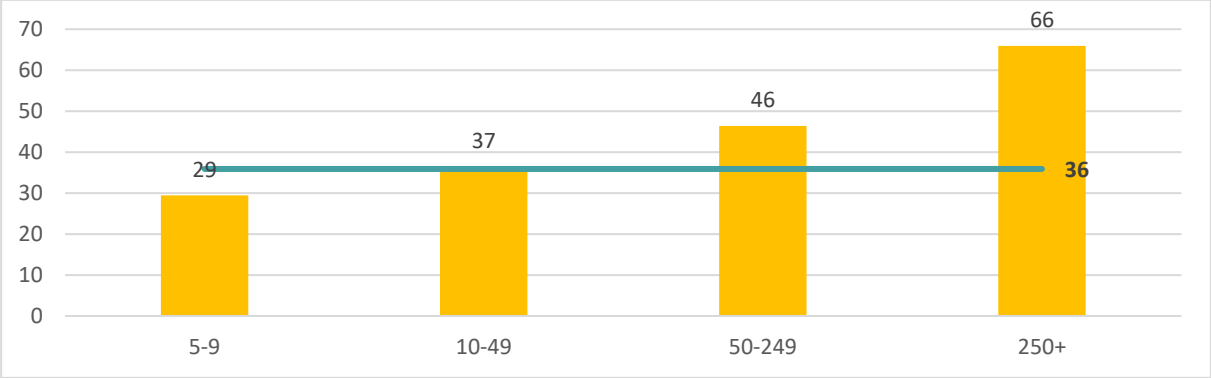
Considering size, the probability of being visited by labour inspectorate services is higher the larger the establishment. Around 29% of HeSCare establishments with 5 to 9 employees have received the visit of these services, this percentage gradually increases to 46% and 66% amongst medium-sized establishments and larger establishments, respectively (Figure 157).

Figure 156: Percentage of HeSCare sector establishments indicating they have been visited by the labour inspectorate in the last 3 years, by subsector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

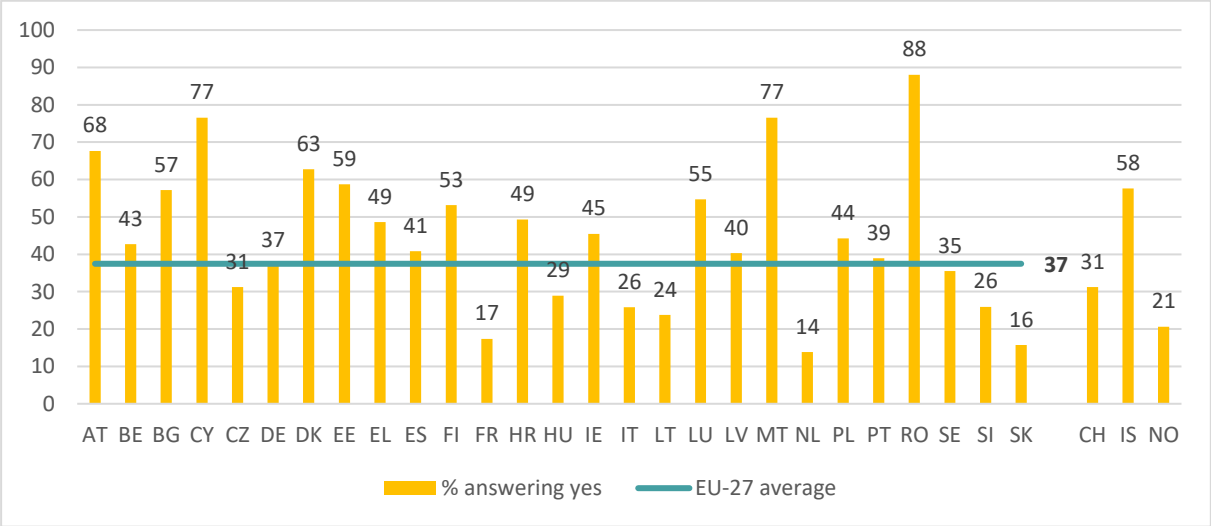
Figure 157: Percentage of HeSCare sector establishments indicating they have been visited by the labour inspectorate in the last 3 years, by size, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

The share of establishments visited by labour inspectorate services differs by Member State (as shown in Figure 158). In Romania, Cyprus, or Malta, more than three quarters of sector establishments were visited in the three years leading up to 2019, whereas in Member States like France, The Netherlands or Slovakia, this share was below 20%. All in all, 11 Member States have a national average for the sector that is lower than the EU-27 average across all sectors, and 22 Member States have a national average that is higher than the EU-27 average.

Figure 158: Percentage of HeSCare sector establishments indicating they have been visited by the labour inspectorate in the last 3 years, by country, EU-27 (+ CH, IS and NO), 2019 (%)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27, Switzerland, Iceland and Norway.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

Finally, results from interviews and the literature review show that in recent years, there has been a decrease in the number of visits of labour inspectors to establishments in the HeSCare sector in comparison to other sectors. There are several reasons behind this negative development, including a decreasing number of labour inspectors coupled with significant increases in their workload and the need for specialisation and training on specific risks. Even in these circumstances, the work of the inspectors is seen as crucial, as they maintain proper attention to OSH issues and provide useful feedback to the controlled enterprises (EU-OSHA, 2022). Several interviewed stakeholders stressed that labour inspectors cannot conduct inspections and monitoring activities on private households employing carers on a personal basis (as many EU families do across the EU Member States), since this would imply a breach to the rights to privacy within homes of the individuals employing domestic

services on their own (private households cannot be considered as workplaces). This limitation creates an additional difficulty for safeguarding the OSH and labour rights of these workers, exposing them to additional hazards and risks. Notwithstanding this, one interviewee suggested that visits by other services (e.g., Public social services) often take the role of labour inspection in order to recommend individuals on home improvements or available resources that could create a better working environment for care workers.

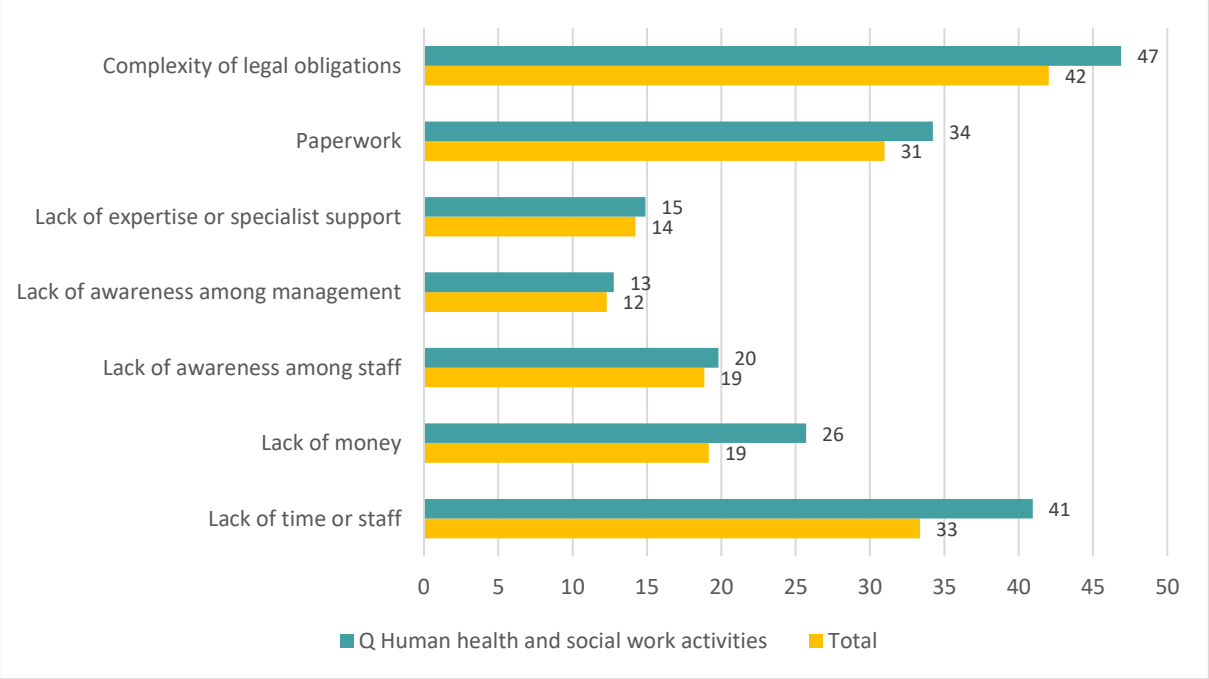
5.2 Barriers for OSH management

5.2.1 Difficulties for engaging in OSH management practices

Despite the existence of different drivers (see previous section), HeSCare sector establishments are also confronted with a number of difficulties in addressing OSH issues. According to ESENER-2019, **the most important difficulties felt are the complexity of existing legal obligations, followed by lack of time/staff to deal with these issues and existing paperwork** (47%, 41% and 34%, respectively) (Figure 159). Less relevant barriers are the lack of resources (in particular, budget), the lack of awareness among staff and the lack of expertise/specialist support on the topic (26%, 20% and 15% of responses, respectively). The lack of awareness among management is the least important difficulty given (13%), which can probably be explained by the high share of respondents that are managers/employers.

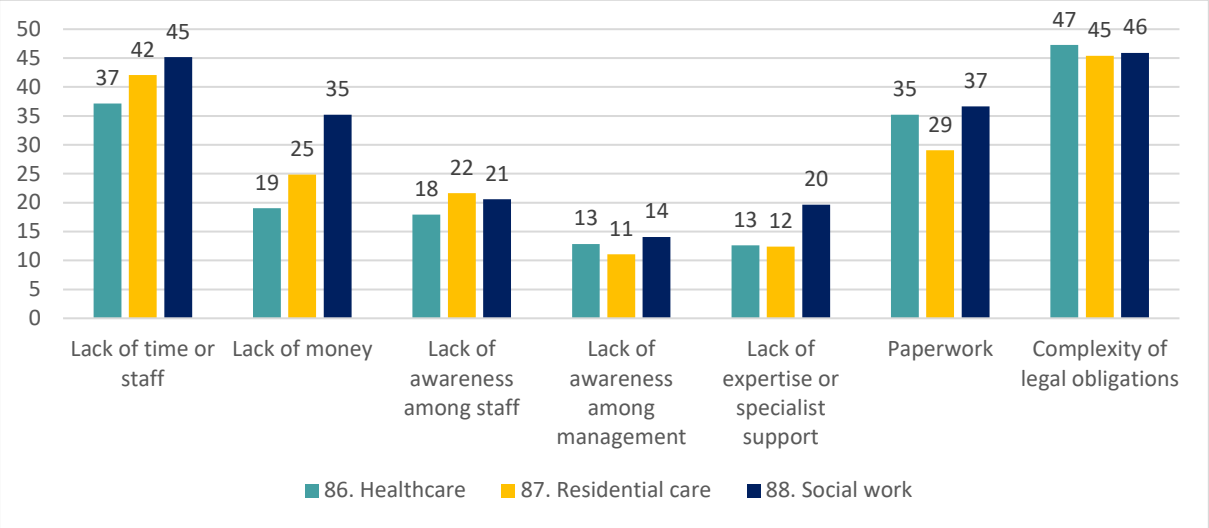
The order of importance of the different factors is similar to the average for the EU-27. Notwithstanding this, **HeSCare sector establishments are particularly more sensitive to the two most relevant barriers in comparison to other sectors, namely the complexity of legal obligations and the lack of resources** (time and staff). Legal obligations are often perceived as complex, particularly for the smaller establishments, where no specialist can make sense of such complexity. Lack of time or staff may also mean that mistakes are more likely to take place, where personnel's high turnover rates may also affect the continuity of and the provision of quality care by establishments to their workforce (EU-OSHA, 2022a). The sequence of importance of these difficulties are equally perceived by the different subsectors comprising the HeSCare sector (see Figure 160).

Figure 159: Difficulties for establishments to address health and safety, by sector, EU-27, 2019 (% indicating major reason)



Source: Panteia based on ESENER-19
Base: All establishments in the EU-27.

Figure 160: Difficulties for HeSCare sector establishments to address health and safety, by subsector, EU-27, 2019 (% indicating major reason)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27.

Box 11: Further analysis of ESENER-19 data variables relating to difficulties of establishments in addressing health and safety

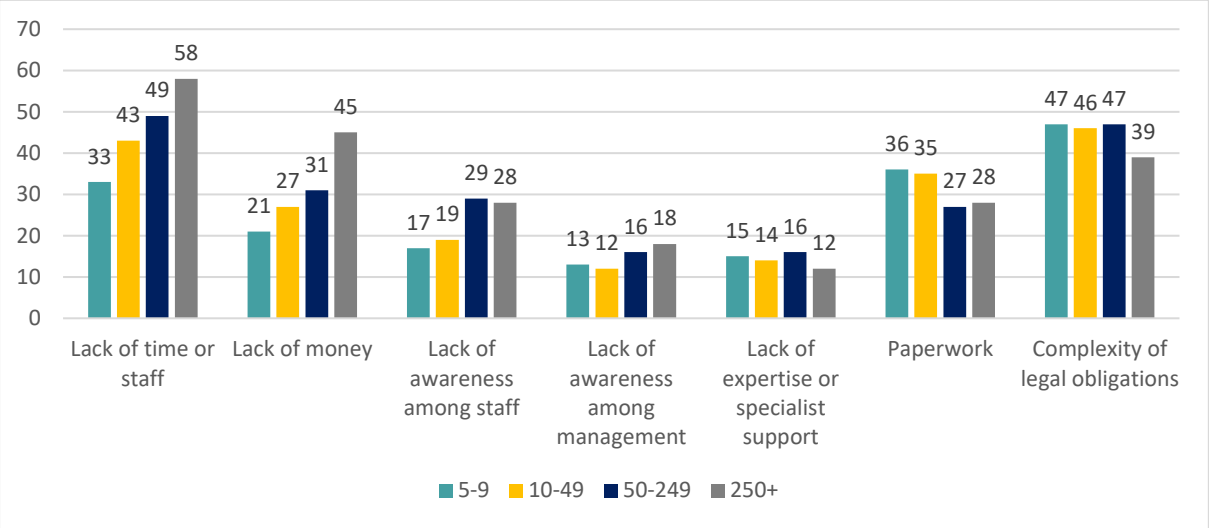
Further analysis of ESENER-19 data variables related to difficulties for HeSCare sector establishments to address health and safety (see Methodological appendix 2) show that:

- A lack of expertise or specialist support impedes establishments in giving attention to OSH management in all three subsectors, indicating the challenges in managing OSH face by establishments without necessary expertise or support.
- Regarding the residential care subsector, while the lack of expertise or specialist support is not associated with a lack of time or staff dedicated to OSH management, it is linked with establishments reporting a lack of awareness among staff. This suggests that awareness among staff members plays a crucial role in addressing OSH challenges in residential care settings.
- In addition to the lack of expertise or specialist support, establishments in the social work subsector also face difficulties related to a lack of money for OSH management. This highlights financial constraints as a significant barrier to effective OSH practices in social work settings.
- The main difficulties associated with giving attention to OSH management in the total economy mirror those observed in the HeSCare subsectors, with the addition of paperwork. This suggests that administrative burdens, such as excessive paperwork, pose challenges to OSH management across various sectors within the total economy.

Source: Panteia based on ESENER-19

Regarding the size of establishments, it could be initially expected that micro and small establishments may have more limited resources (time, staff, financial resources) to address OSH management issues (EU-OSHA, 2016b). However, these difficulties, although important for all establishment sizes, are less felt by the micro and small establishments in comparison to the largest ones, according to the results stemming from the ESENER-19 survey (Figure 161). By way of contrast, micro and small HeSCare sector establishments have more difficulties related to paperwork and complexity of legal obligations than larger sector establishments. In addition, micro and small HeSCare establishments seem to be less concerned about managers and staff awareness on OSH issues. This might also be explained by the fact that in smaller establishments it is the manager who was surveyed.

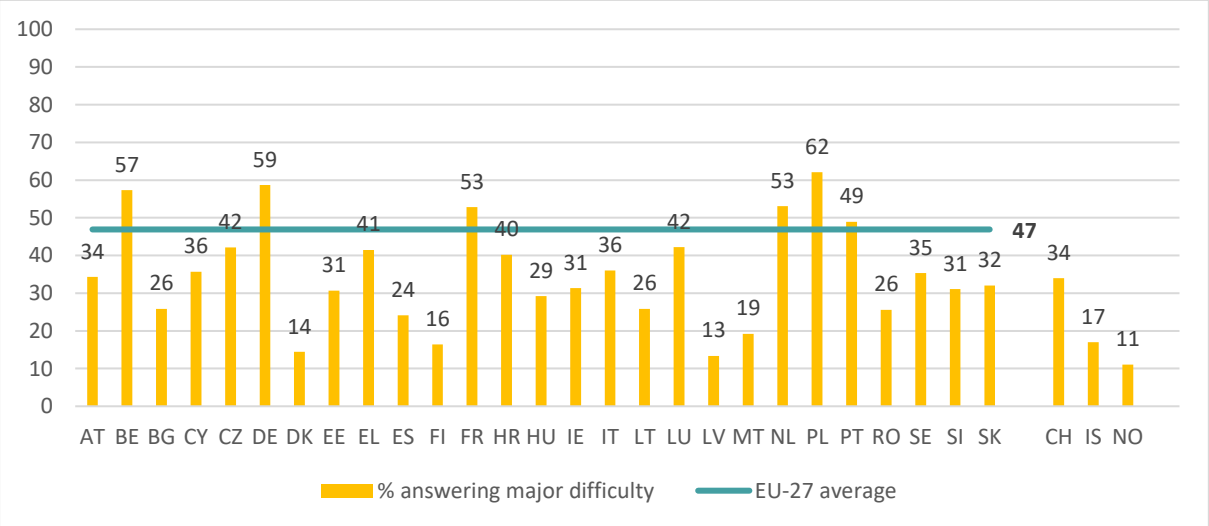
Figure 161: Difficulties for HeSCare sector establishments to address health and safety, by size, EU-27, 2019 (%)



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

As Figure 162 shows, the perception of respondents that identify the complexity of existing legal obligations as a major barrier to address health and safety issues differs by Member States. This complexity seems to be particularly felt in Member States such as Poland, Germany, Belgium, France and The Netherlands (more than 50%).

Figure 162: Percentage of HeSCare establishments identifying "complexity of legal obligations" as a major difficulty in addressing health and safety, by country, EU-27 (+ CH, IS and NO), 2019 (%)



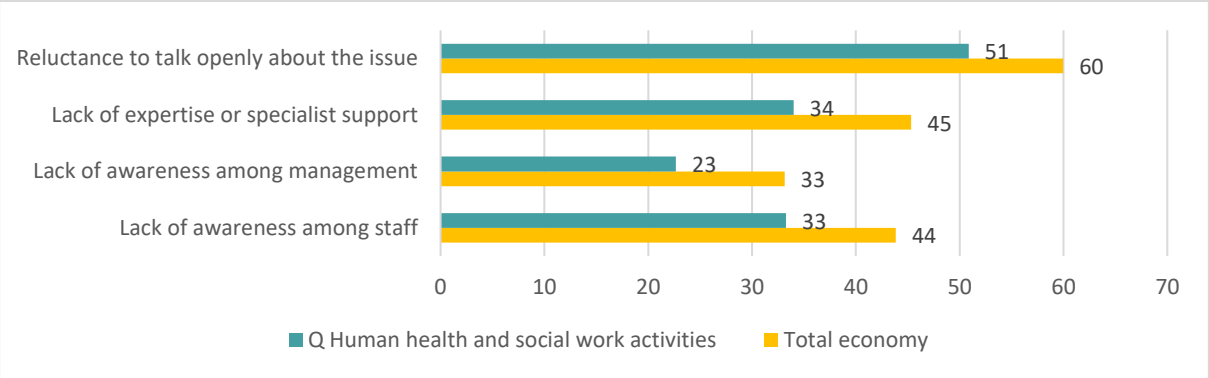
Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27, Switzerland, Iceland and Norway.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

5.2.2 Main obstacles to dealing with psychosocial risks

As already discussed in Section 3.1.3, exposure to psychosocial risks (such as mental and physical workload, dealing with demanding patients, high responsibility, long working hours and poor work-life balance) is particularly evident in the HeSCare sector (Sandeva, 2020). ESENER-19 provides information on the difficulties establishments in the sector face with addressing PSRs. The most relevant difficulties include the **reluctance to talk openly about these risks** (51%), followed by the **lack of**

expertise/specialist support and the lack of awareness among staff (34% and 33% respectively) (Figure 163). Once again, the lack of awareness among management is the least suggested obstacle (23%), likely due to the high share of respondents that are managers/employers. The issue of the stigma attached to mental health is probably the main reason behind this reluctance to talk openly on the issue, a result which is confirmed by existing literature and from the information gathered from the interviews carried out. A friendly and open companies' working culture towards mental health issues, with trained line management and specialist support who are ready and capable to discuss issues and to ensure anonymity when required is necessary to overcome these difficulties (EU-OSHA, 2022a).

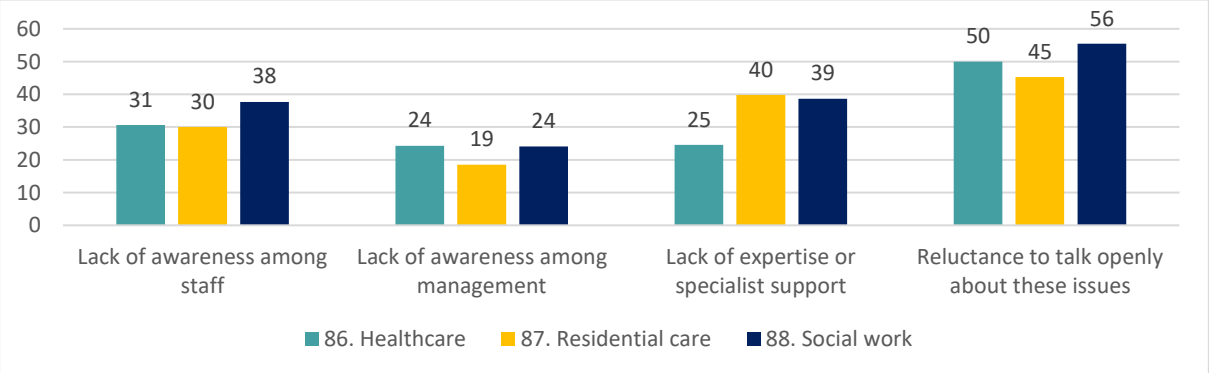
Figure 163: Main obstacles to dealing with psychosocial risks in the establishments, by sector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: Responses only of those establishments that have identified one or more psychosocial risk and report that psychosocial risks are more difficult to adress than other risks in the EU-27.

The data show that the HeSCare sector is less affected by the suggested difficulties. The HeSCare sector is less reluctant to talk openly about the issue, is more aware about the problem (both managers and staff) and experiences fewer difficulties to find expertise/specialist support. A comparison of the results between the different HeSCare subsectors shows no important differences (see Figure 164). The social work subsector seems to be more reluctant to talk openly about the issue and is less aware of the topic among staff and management vis-à-vis the other subsectors.

Figure 164: Main obstacles to dealing with psychosocial risks in the HeSCare sector establishments, by subsector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: Responses only of those HeSCare sector establishments that have identified one or more psychosocial risk and report that psychosocial risks are more difficult to adress than other risks in the EU-27.

The available literature identifies a number of additional barriers to deal with these psychosocial risks, including the focus of enterprises on more traditional hazards (particularly physical ones), as well as the complexity and high costs of psychosocial risk management, which often requires high-level expertise (EU-OSHA, 2023c; Jain, 2021).

5.2.3 Evolution in the reasons to address OSH and difficulties encountered when doing so

The desire to meet expectations from employees or their representatives is the most common reason for establishments to give attention to general and psychosocial OSH management, and the percentage of establishments reporting this as a major reason has increased slightly between 2014 and 2019 (as shown in Table 19). However, it should be noted that the percentage was already very high: 82% in 2014. When including establishments that report meeting the expectations of employees or their representatives as a minor reason for giving attention to OSH management, this motivation drives nearly all establishments in the HeSCare sector: 95% in 2014 and 96% in 2019.

In all three HeSCare subsectors, there is no clear link between how much attention is given to general OSH management by establishments and the reporting of a lack of expertise or specialist support as a difficulty. This connection was also not observed for attention to psychosocial OSH management either. When considering how frequently this difficulty is reported by HeSCare establishments, 15% cited it as a major issue in 2019, with an additional 29% reporting it as a minor concern. Both figures have increased slightly since 2014.

Table 19: Percentage of EU-27 HeSCare establishments reporting major reasons and difficulties related to addressing OSH in ESENER-14 and ESENER-19 (%)

	2014	2019
Reasons to address health and safety (reported as major reason):		
..fulfilling legal obligation *	88	90
..meeting expectations from employees *	82	85
..increasing productivity *	56	53
..organisation's reputation	78	76
..avoiding fines from the labour inspectorate	72	74
Difficulties in addressing health and safety (reported as major difficulty):		
..lack of time or staff *	29	41
..lack of money *	26	26
..lack of awareness among staff *	19	20
..lack of awareness among management *	13	13
..lack of expertise or specialist support	13	15
..paperwork *	31	34
..complexity of legal obligations *	40	46

Source: Panteia based on ESENER-14 and ESENER-19
* Difference between 2014 and 2019 is statistically significant at the 0.05 level.

5.3 Additional elements influencing OSH management practices

The EU HeSCare sector has been experiencing fundamental transformations driven by an array of contextual circumstances and dynamic drivers of change. This section presents the key elements that are shaping the recent past, present, and future of the HeSCare sector across the EU Member States.

5.3.1 The impact of COVID-19 pandemic on OSH management practices

The COVID-19 pandemic has had a very profound impact on the HeSCare sector in many ways, not only internally (for instance in terms of tougher OSH conditions for workers) but also externally (for instance in terms of their own image of the sector and its relevance for society). These impacts can be summarised around the following main five blocks:

- **Renewed awareness on the importance of the HeSCare sector and its workers**

Several interviewed experts and literature sources suggest that the crisis opened by the COVID-19 pandemic has renewed attention and awareness of the importance of the HeSCare sector, mostly due to the incredibly professional work of HeSCare workers throughout very difficult circumstances. The COVID-19 pandemic also highlighted some of the serious concerns and weaknesses that already existed in the sector, including the lack of preparedness to face a crisis on such a big scale (EXPH, 2020). The COVID-19 crisis has also revealed the importance and urgency of building more resilient and sustainable healthcare systems for future healthcare crisis (EU-OSHA, 2022a; Lupu & Țigănașu, 2022).

- **Significant increase in HeSCare workers' exposure to OSH risks**

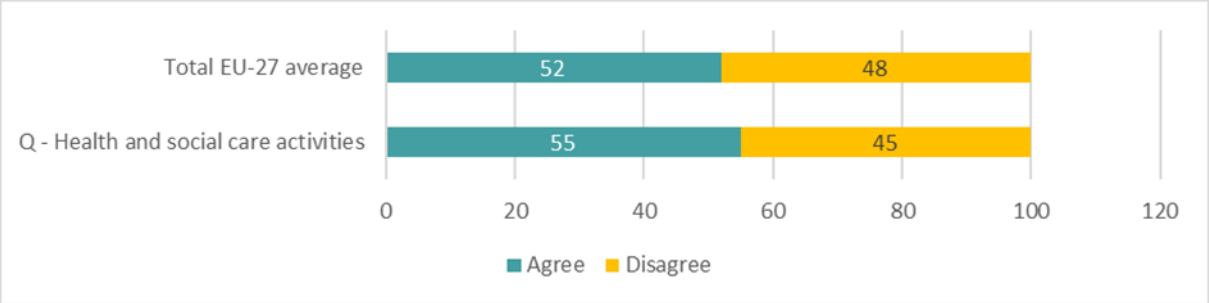
The HeSCare sector was particularly exposed to the burdens of the COVID-19 pandemic. Due to the nature of the activities, its workforce was placed on the frontline during the evolution of COVID-19. The HeSCare workforce encountered numerous threats and risks that had adverse effects on its physical and mental health (WHO, 2021). Some of these hazards included exposure to infections with the virus, skin problems due to prolonged use of protective equipment, long working hours, and increased workload to accommodate patients, exposure to toxins from disinfectants or high exposure to psychosocial risks such as psychological distress, chronic fatigue, verbal harassment, exposure to death, ethical dilemmas and uncertainty (European Parliament, 2022; FORESEE, 2022).

Studies show that those workers exposed to the disease and obliged to undergo quarantine periods often grappled with feelings of guilt for leaving the frontline understaffed, were concerned about potentially infecting their families, and had inner conflicts related to their dual roles as healthcare professionals and parents or caregivers (and aggravated in the case of women) (Walton, Murray & Christian, 2020). Other studies demonstrate that HeSCare sector workers encountered adverse mental health outcomes, such as depression, anxiety, burnout, sleep disturbances, post-traumatic stress disorders (PTSD), and distress (Lopez et al. 2022; EU-OSHA, 2022a).

These problems were aggravated in some specific subsectors. For instance, long-term care workers experienced a disproportionate impact of health issues, with 60% being exposed to physical risks, and 44% grappling with mental health problems (OECD, 2020). Also, some interviewed stakeholders suggested that during the COVID-19 pandemic, domestic workers engaged in care activities were not provided with proper protection equipment against the disease. Some domestic workers died because of infection from the families where they worked, whereas others acted as a vector of contagion from one household to another, and many domestic workers living in the house were even fired for the fear of contagion.

Information from the OSH Pulse Survey 2022 presented in Figure 165 shows that up to 55% of those in employment in the HeSCare sector suggest that their work stress has increased as a result of the COVID-19 pandemic, this percentage being slightly higher than the average for the total EU-27 population in employment. However, 55% of workers in the sector said that COVID-19 made it easier to talk about stress and mental health at work.

Figure 165: Percentage of workers indicating work stress has increased as a result of the COVID-19 pandemic, by sector, EU-27, 2022 (% agree / disagree)



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

There is growing evidence reporting persistent symptoms following a COVID-19 infection, leading to different health issues. The symptoms usually last more than four weeks after the infection and are referred to as long COVID. Additionally, when the symptoms are present for more than three months and cannot be linked to another condition, it is called post-COVID-19 syndrome. Some recent studies conducted in Germany show that HeSCare workers have been particularly prone to experiencing long COVID due to their occupational exposure to the virus and heightened vulnerability during the early stages of the pandemic before the vaccines were incorporated (Peters et al. 2022). This considerable prevalence of long COVID in the age group of 35-69 in the HeSCare sector has the potential to exert a substantial influence on the economy (TUC, 2023).

- **COVID-19 specific impacts on employment and recruitment difficulties**

The COVID-19 pandemic has resulted also in a number of changes related to HeSCare employment. On the one hand, and upon the emergence of the COVID-19 pandemic, numerous restrictions arose limiting the ability for employment to be pursued in a regular manner. Due to lockdowns, employment was generally put to a halt, or transferred to telemedicine. For domestic care workers, an online nature was inevitably unfeasible, which raised questions in numerous countries on whether domestic workers should be recognised as "essential workers", with differing responses amongst Member States.[31] Simultaneously, the unregulated nature of part of the workforce complicated the matter in terms of ensuring health and safety (University of Amsterdam, 2022).

On the other hand, the COVID-19 pandemic made the recruitment and retention of HeSCare workers particularly difficult (especially in some subsectors such as elderly and domestic care), highlighting the need for migrant care workers of all skill-levels in order to diminish labour shortages (Dotsey, 2023). According to some estimations, the residential care activities (NACE 87) experienced an important employment decline from 4.45 million employees in 2019 to 4.03 million employees in 2020, partly due to fears of becoming infected. Also leading to this decline was the decision to take care of one's dependant relatives. This explains the increase in employment in the subsector social work activities (NACE (88) from 4.66 million workers to 4.93 million workers between 2019 and 2020 (FORESEE, 2022). Moreover, some interviewed experts suggest that, during the COVID-19 pandemic, many domestic workers did lose or left their job due to their precarious employment conditions and the fear of contagion, resulting also in homeless situations.

- **Fostering of innovation**

The COVID-19 pandemic also showcased and fostered the use of new methods and innovations for performing medical services, including the use of telehealth, remote consultations with care workers and remote monitoring systems to cope with the requirement of social distancing (OECD,2020). The use of telemedicine was quite limited in most advanced countries before the COVID-19 pandemic, held back by regulatory barriers and hesitancy from patients and providers. In early 2020, as COVID-19 massively

[31] For instance, and whereas in Belgium domestic workers were classified as essential workers and were therefore compelled to continue their employment obligations in personal households (including the distribution of Personal Protective Equipment), in The Netherlands, the little legal protection given by the Dutch legislation (the RDAH) to domestic workers (like being exempted from receiving social security benefits) meant that many of them were left empty handed during the pandemic.

disrupted in-person care, governments moved quickly to promote the use of telemedicine, where the number of teleconsultations skyrocketed, playing a vital role in maintaining access to care, but only partly offsetting reductions in in-person care. According to the OECD, telemedicine may be here to stay, but questions remain concerning how to regulate its use, how to pay for it, how to integrate it with in-person care, and how to make sure that it constitutes good value for money for all (OECD, 2023).

- **Reduced number of workplace labour inspections**

The COVID-19 pandemic has also led to a reduction in the number of labour inspections taking place, and better reflected in the reduction of visited establishments in the last years, due to factors such as shortages of labour inspectors and restrictions on entering workplaces due to biological risks (EU-OSHA, 2022a).

5.3.2 Digitalisation and OSH management practices

- **Use of digital devices in the HeSCare sector**

The last few decades have seen the emergence of important innovations in the HeSCare sector, which are mainly connected to new services, new ways of work and/or new technologies (new medications or types of surgery). In this regard, the latest innovations in the HeSCare sector include nanotechnology, robotics, biotechnology, artificial intelligence enabled medical devices, and genomics, as well as new OSH-prevention technologies for HeSCare sector workers and an increasing use of ICT-related innovations (World Economic Forum, 2023). Table 20 below provides some examples of OSH-prevention technologies for HeSCare sector workers.

Table 20: Examples of occupational health technologies to support preserving worker health

Main areas	Examples
Portable devices	Physiological monitoring. Exoskeletons.
Robots and drones	Medical supplies assistance. Search and rescue. Transport of medical devices.
Health apps	Body movement. Flexibility and strength in extremities. Posture correction. Detection of vital signs and emotional states.
Virtual, augmented and mixed reality	Expansion of visual capabilities. Assistance in obtaining diagnosis. Remote medical consultations.

Source: Flor-Unda et al, 2023

According to some stakeholders, digitalisation and platformisation are two of the most radical changes in today's society, transforming all sectors including the HeSCare sector (EU-OSHA, 2024, European Centre for Social Welfare Policy and Research, 2023). As far as digitalisation is concerned, it can be defined as the massive adoption of digital technologies to generate, process and share information and implement specific tasks via digital devices (Federation of European Social Employers and European Public Service Union (EPSU), 2019). In the field of healthcare, digitalisation corresponds, for instance, to telemedicine, artificial intelligence enabled medical devices, and blockchain electronic health records. This digitalisation transforms, for instance, interactions and work processes with health professionals, how data is shared among providers and how decisions are made about treatment plans and health outcomes. It supports the development of digital monitoring systems in the care sector and requires new

(digital) skills to manage these digital solutions (Foundation for European Progressive Studies, 2023). Table 21 presents examples of some digitalisation tools being utilised in the HeSCare sector.

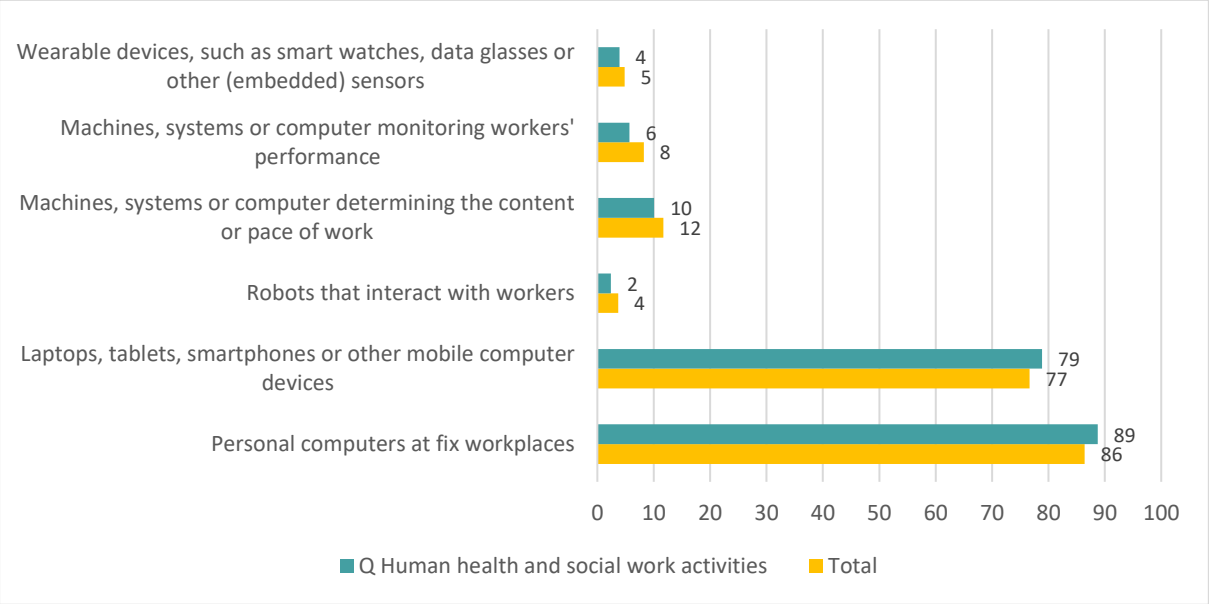
Table 21: Examples of digitalisation tools in the HeSCare sector

Examples	Description
Automation of tasks and occupations	Replacement of (human) labour input by machine input, including advanced robotics, artificial intelligence and machine learning.
Digitalisation of processes	Use of sensors and the digital processing, storage and communication of information as well as person-related data, including through the Internet of Things, 3D printing, virtual reality, augmented reality and telecare.
Emergence of platforms and use of blockchain	Offering of services on online platforms.
Digital documentation systems	Electronic patient files accessible by the care worker via smartphones and tablets, etc.
Artificial intelligence and introduction of robotics	Lifting aids, household and care robots, etc.
Connected help and monitoring systems	Emergency buttons, fall sensors, etc.
Big data	The use of big data to foster personalised services.

Source: Federation of European Social Employers and European Public Service Union (EPSU), 2019

According to different sources, the use of digital devices at work is widespread in the HeSCare sector. The ESENER-19 survey shows that the use of digital technologies at work in the HeSCare sector establishments is well extended and relatively similar to the situation in the total economy (see Figure 166). In this sense, up to 89% and 79% of HeSCare establishments use personal computers at fixed workplaces and mobile computer devices (laptops, tablets, smartphones), respectively, these figures being clearly in line but slightly above the corresponding percentages for all sectors (86% and 77%, respectively). Meanwhile, other digital technologies such as machines/systems or computer monitoring the content/pace of work/workers' performance, wearable devices (smart watches, data glasses or other (embedded) sensors) or robots that interact with workers are much less extended in the HeSCare sector (less than 12% in all cases), in relatively similar trends to the rest of the sectors.

Figure 166: Percentage of establishments indicating they have used digital technologies for work, by sector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: Responses only of those establishments that have used digital technologies for work in the EU-27.

There are no important differences amongst HeSCare subsectors in the use of digital devices at work (as shown in Figure 167). The available data show that the use of personal computers at fixed workplaces and the use of machines/systems or computer monitoring the content/pace of work is slightly higher amongst healthcare establishments. The use of mobile computer devices (laptops, tablets, smartphones) is slightly more present amongst social work establishments, a result which is likely explained by the own mobile nature of many of the workers employed in this subsector.

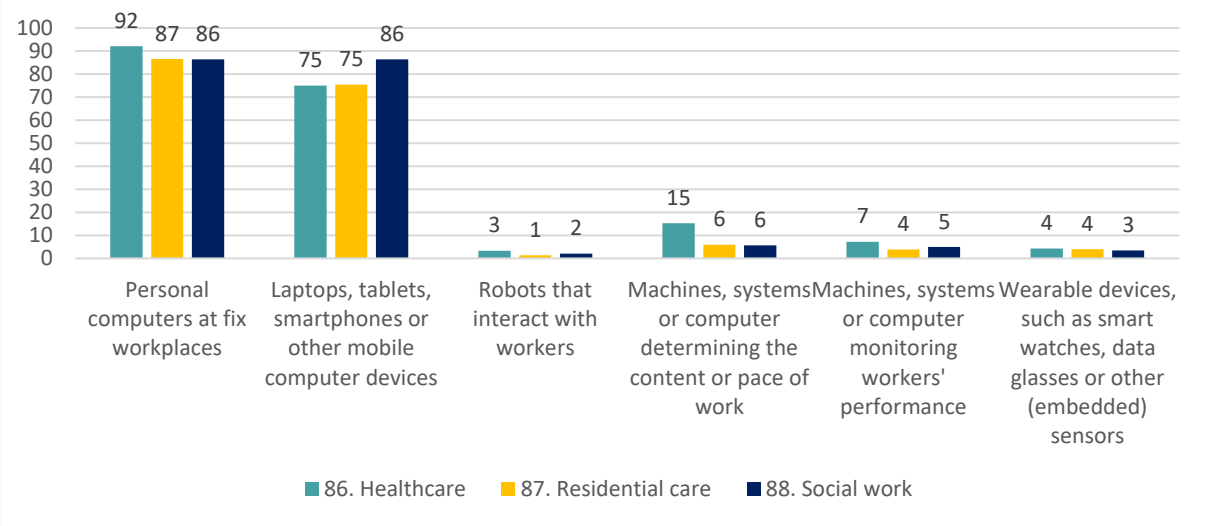
Box 12: Further analysis of ESENER-19 data variables relating to digitalisation and OSH management

Further analysis of ESENER-19 data variables relating to digitalisation and attention given to OSH management (see Methodological appendix 2) show that:

- In the healthcare and residential care subsectors, the use of laptops and other mobile devices is strongly associated with attention given to OSH management. In the social work subsector, however, OSH management is more strongly related to the use of less common technologies such as machines, systems or computers monitoring workers' performance and wearable devices. In the total economy, all these factors are associated with attention to OSH management.
- The use of digital technologies is also linked to the presence of psychosocial OSH management practices:
  - Machines, systems, or computers monitoring workers' performance are associated with attention to psychosocial OSH management across all HeSCare subsectors.
  - In the healthcare subsector and the total economy, the use of laptops and other mobile devices is linked to the presence of psychosocial OSH management practices.
  - In the social work subsector and the total economy, the presence of machines, systems or computers determining the content or pace of work is associated with attention to psychosocial OSH management.
  - In the residential care subsector, attention to psychosocial OSH management is most related to the use of robots that interact with workers.
- These findings suggest that digitalisation plays a significant role in shaping OSH management practices, both in general and in the context of psychosocial well-being. Additionally, the association between digital technologies and psychosocial OSH management underscores the potential of technology-driven interventions in promoting a healthy and supportive work environment.

Source: Panteia based on ESENER-19

Figure 167: Percentage of HeSCare sector establishments indicating they have used digital technologies for work, by subsector, EU-27, 2019 (%)

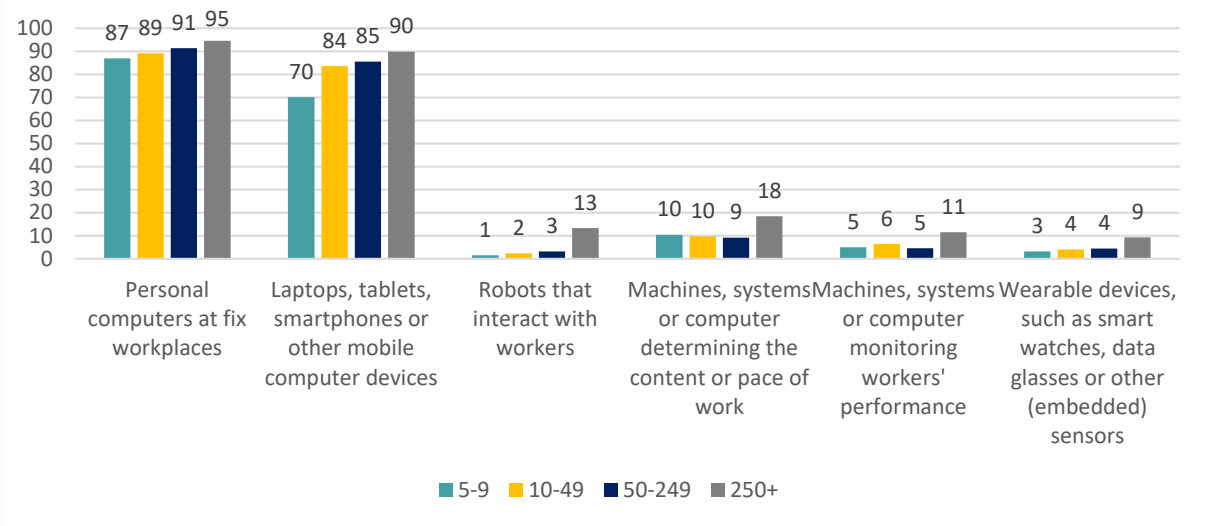


Source: Panteia based on ESENER-19
Base: Responses only of those HeSCare establishments that have used digital technologies for work in the EU-27.

Concerning establishment size differences in the HeSCare sector regarding the use of digital devices at work, as it could be expected, there is a clear size effect in the use of these technologies. Larger establishments show a higher use of all kinds of digital technologies, not only the most extended ones

(fixed personal computers and mobile computer devices) but also the less used ones such as machines/systems or computer monitoring the content/pace of work/workers' performance, wearable devices or robots (Figure 168). Also, it is interesting that there are still large differences in the use of relatively well extended mobile computer devices such as laptops, tablets, smartphones amongst the smallest establishments, particularly in comparison to the larger ones.

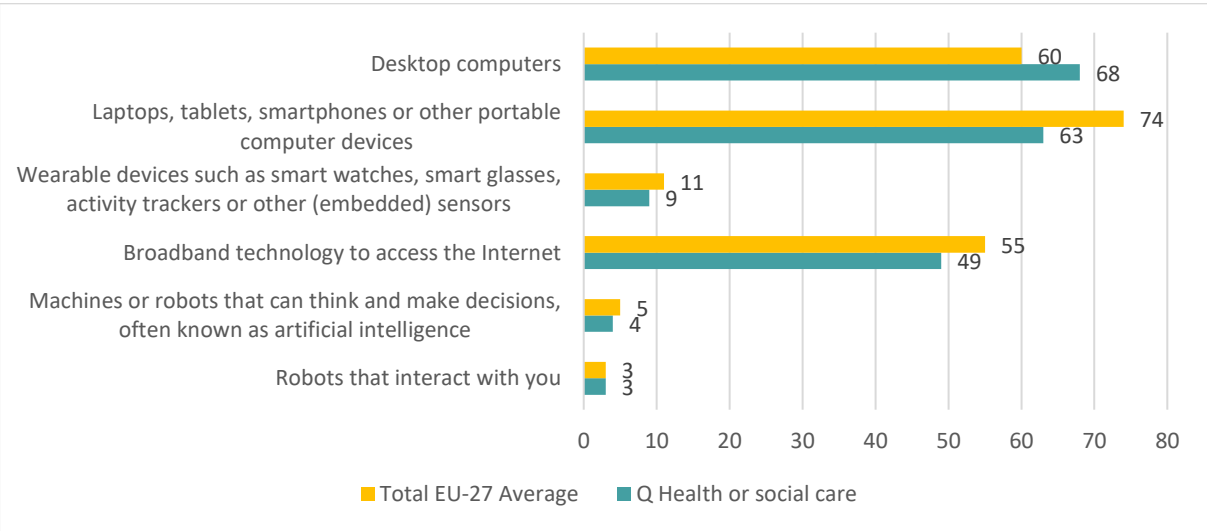
Figure 168: Percentage of HeSCare establishments indicating they have used digital technologies for work, by size, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: Responses only of those HeSCare establishments that have used digital technologies for work in the EU-27.

Information collected from the OSH Pulse 2022 Survey relating to those employed in the HeSCare sector shows an extensive use of some specific devices for their main job, particularly desktop computers (68%) and laptops, tablets, smartphones or other portable computer devices (63%) (Figure 169). 49% use broadband technology to access the Internet. By way of contrast, other devices such as wearable devices (smart watches, smart glasses, activity trackers) or machines/robots are less common in the HeSCare sector (less than 10%).

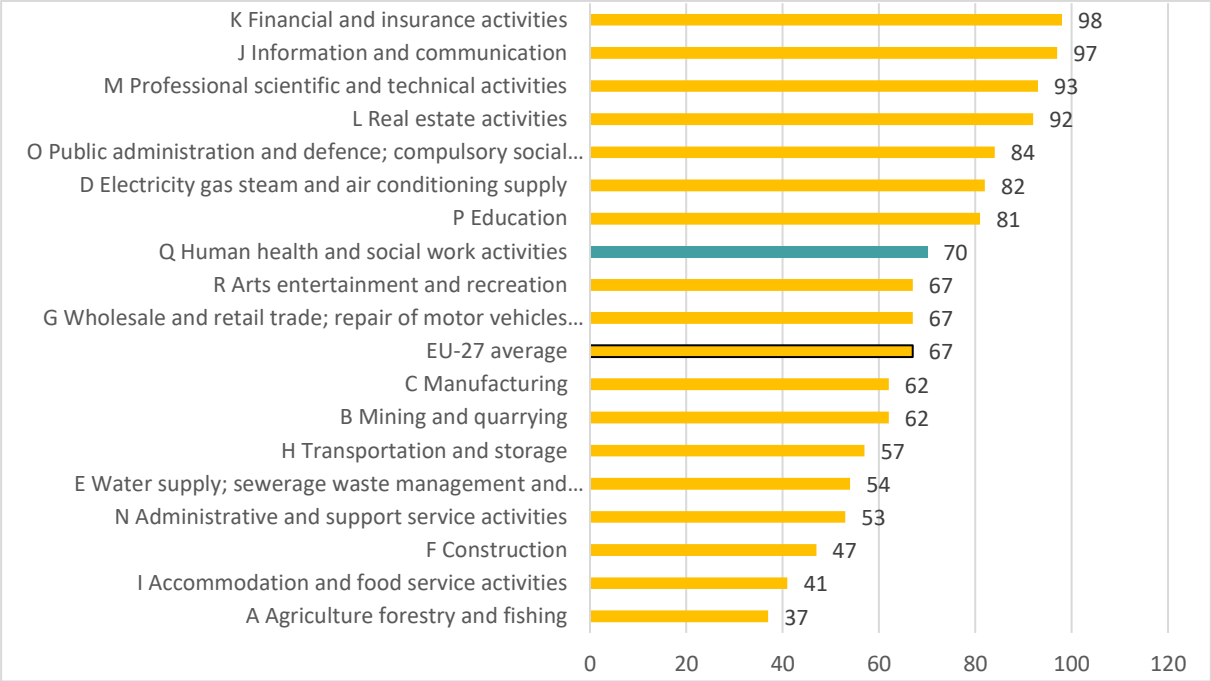
Figure 169: Percentage of workers indicating they use the following digital devices for their main job, by sector, EU-27, 2022 (%)



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

At the individual perspective of workers using digital devices (computer, laptop, tablet, or smartphone), data from the EWCTS show that up to 70% of HeSCare workers use them often/always at work. Although this result is relatively similar to the EU-27 average across all sectors, it is far from the existing use in other sectors such as financial services, ICT or scientific and technical activities (at the top) or agricultural, accommodation and food services and Construction activities (at the bottom) (Figure 170).

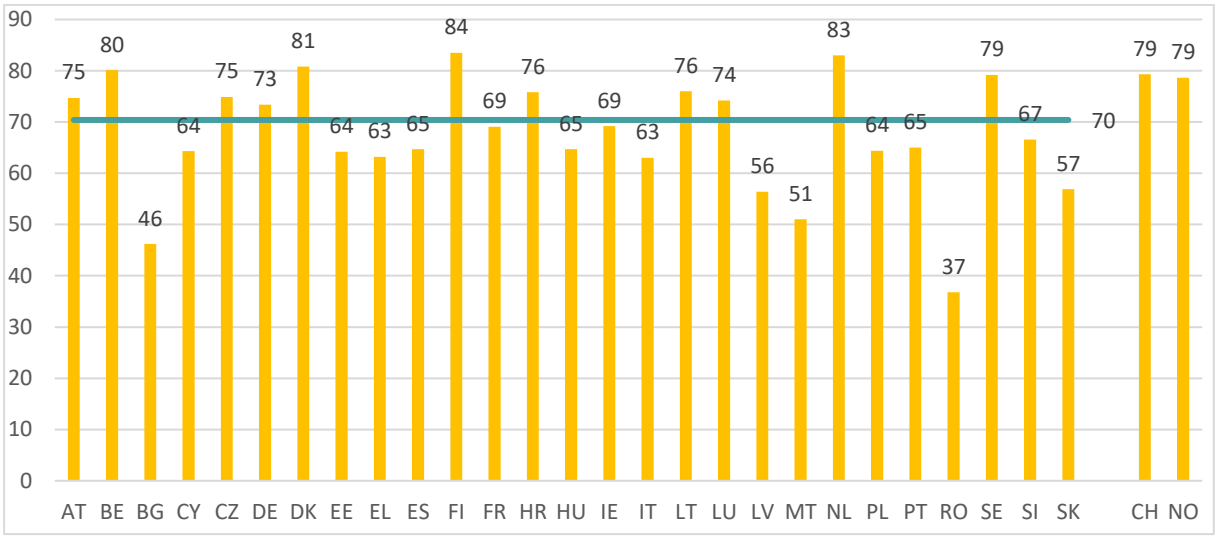
Figure 170: Percentage of workers performing often/always work with a computer, laptop, tablet, or smartphone, by sector, EU-27, 2021 (%)



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

There are relatively important differences in the share of HeSCare workers performing often/always work with a digital device (computer, laptop, tablet, or smartphone) in the HeSCare sector at Member State level (see Figure 171). The use of these devices is very much apparent in Denmark, Finland, Sweden or The Netherlands (more than 79% of workers use these devices often/always) in comparison with Bulgaria or Romania (where less than half of workers use them often/always).

Figure 171: Percentage of HeSCare sector workers performing often/always work with a computer, laptop, tablet, or smartphone, by country, EU-27 (+ CH and NO), 2021 (%)



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

- **Opportunities and challenges brought by digitalisation in the HeSCare sector**

Digitalisation in the HeSCare sector is bringing a number of positive elements to the sector, with a number of possible opportunities presented in Table 22. Thus, digitalisation makes access to quality HeSCare services easier, makes administration and communication easier between both workers amongst themselves as well as between HeSCare workers and clients and makes healthcare services more user-friendly and easier to access, improving their quality. For instance, telehealth and remote monitoring are some examples of such tools that have enabled HeSCare professionals to deliver care and support remotely, reducing the need for in-person interactions and reducing therefore their exposure to risks (for instance the COVID-19 virus). This approach has resulted in more tailored, efficient, and cost-effective care, while also improving care accessibility for individuals who face challenges in accessing care (Eurofound, 2020d: Federation of European Social Employers and European Public Service Union, 2019; Foundation for European Progressive Studies, 2023).

Table 22: Opportunities linked to the introduction of digital technologies in the Social Services sector

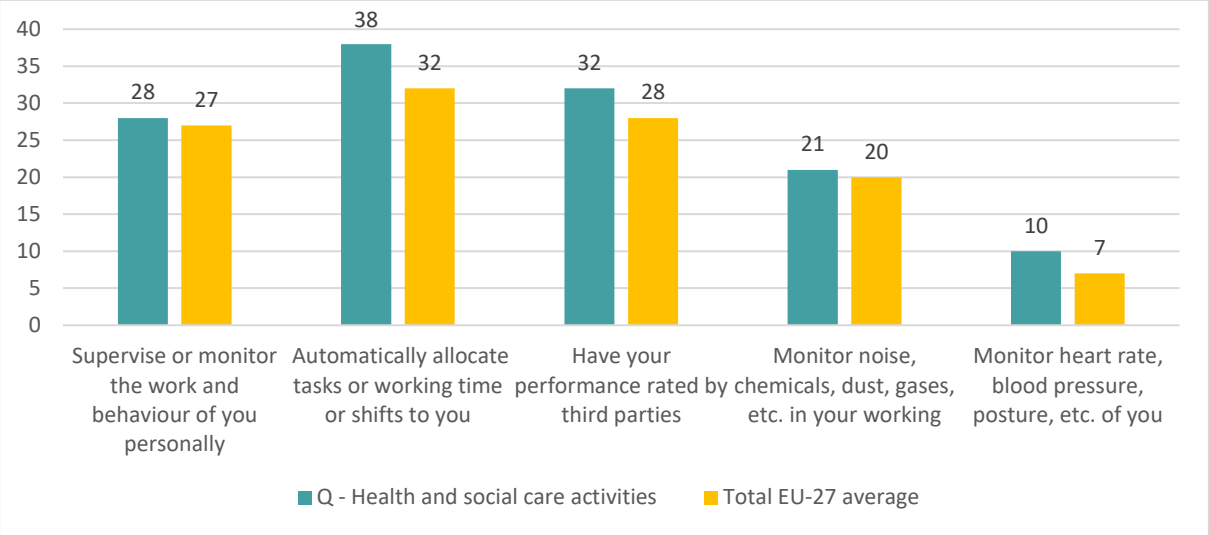
Main Opportunities	Explanation
Improvement of current and creation of new social services	Digital technologies have the potential to improve old and create new services, better responding to the needs of service beneficiaries. The re-design of social services, around the needs of individuals, provides the best opportunity to improve people's health, wellbeing and social inclusion. Many areas across Europe are moving towards new forms of delivering care – whether through integrated or personalised care.
Promoting independence, quality of life and wellbeing	The use of digital technologies in social services can enable beneficiaries to maintain their independence and wellbeing and can reduce social exclusion. The use of digital channels can also bring reassurance to carers and families, who may not always live close to those they are supporting, thus reducing potential feelings of social isolation.
Enabling social service professionals to work from any base at any time	Technology can enable care and support professionals to work seamlessly from multiple locations and in multi-disciplinary teams, optimising workflows and work processes. The use of mobile technology and improved connection speeds will enable quick access to information across the care system. This means that care

Main Opportunities	Explanation
	and support professionals will be able to deliver services more efficiently and effectively, working collaboratively across organisations and sectors.
Increasing the attractiveness of the sector	Offering a workplace with modern, up-to-date equipment can increase the employer's attractiveness, also for young professionals.
Recruitment	Online portals can help employers self-promote and get in touch with a specific target group. Technologies such as screening software can facilitate the recruitment process.
Better managed workload	Digital working methods such as electronic patient files have the potential to save time. The physical strain of care work can be reduced with the aid of robotics.
Protecting and empowering workforce	Involving workers in the process of implementing digital technologies can ensure the confident and effective use of such technologies. Digital devices can improve OSH, especially for lone workers. Equipping workers with protection devices to use in case of an emergency can also ensure their safety at work.
Use of simulators for education programmes	New methods of training, including the use of simulators, can help to develop practical and technical competences, also regarding the scarcity of traineeships. Digitalisation also promotes new forms of advanced training, for instance blended learning, e-learning, MOOCs and free online courses. Concerning the efficiency of these methods, it might be useful to collect employers' and workers' evaluations.

Source: Federation of European Social Employers and European Public Service Union (EPSU), 2019

The information collected from the OSH Pulse 2022 Survey complements the previous point and identifies the main reasons underpinning the introduction of these digital devices (tablet, smartphone, computer, laptops, etc) in the HeSCare sector. Workers in the HeSCare sector identify three main reasons why the organisations where they work have used these digital devices, namely, to automatically allocate tasks/working time/shifts (suggested by 38% of sector workers), to have the workers' performance rated by third parties (e.g. customers, colleagues, patients, etc) (32% of responses) and, finally, to supervise/monitor the individual workers' work and behaviour (28% of responses) (Figure 172). These three reasons are slightly more present amongst HeSCare sector workers than in the total EU-27 economy, particularly in relation to the automatic allocation of tasks/working time/shifts.

Figure 172: Percentage of workers indicating (to their knowledge) the use of digital devices (such as tablet, smartphone, computer, laptop, app or sensor) by their organisations, by sector, EU-27, 2022 (%)



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

Despite the opportunities that digitalisation has brought to the sector, there are several challenges and obstacles that jeopardise them, which are summarised in Table 23. Obstacles include the complexity of technology, the use of digital developments to overcontrol workers, inadequate investment in digital infrastructure or the need for continuous training and support for care workers in using evolving digital tools for communication, monitoring or reporting of remote healthcare status (European Commission, 2019e). Also, digital solutions require safeguards to protect the private life of care workers and clients who are monitored and call for digital competence training for both caregivers and care recipients, especially in the case of older people (Foundation for European Progressive Studies, 2023; WHO, 2021).

Table 23: Challenges associated with the introduction of digital technologies in Social Services sector

Main challenges	Explanation
New ways of work	The emergence of digital ways of organising work (e.g., online platforms) raises new questions for quality standards and the organisation and regulation of work. This includes an increase in the use of non-standard forms of employment and work, such as casual work, on-call work, temporary agency work, informal work and dependent self-contractual employment. Atypical work arrangements also put at stake workers' coverage by social security schemes and impacts on the financing of those schemes. Digital tools may also imply higher control and monitor over care workers' daily activities.
Data management	Health and social data is very sensitive and does not only contain medical but also financial information about one's social protection situation or medical expenses. e-health apps are not regulated, and the data generally ends up within the remit of the GAFAs[32]. It is a priority to make sure that the introduction of new technologies and use of big data in social services is agreed and regulated through social dialogue and collective bargaining at different levels as well as through legislation that protects and regulates the use of such data by social services, including by its workforce. The use of technologies needs to be dealt with in conformity with the General Data Protection Regulation (GDPR).

[32] GAFA is an acronym for four American IT companies, Google, Apple, Facebook, and Amazon, and is used to describe the group of companies leading the global IT market.

Main challenges	Explanation
Digital skills	New technologies can require additional training and qualification, equipping workforce with an adequate set of skills and competences. One priority should be to holistically integrate digital skills into relevant education structures and professional training. Continuing Professional Development (CPD) throughout the worker's career can help to address the digital divide that prevents the workforce in social care (not least in the context of an ageing workforce) to fully take advantage of new technologies.
Funding gaps	Limited financial resources are one of the biggest impediments for the digital transformation of the social services sector. Significant investments may be required to support the effective digital transformation and cover the full additional costs which can occur, such as the purchase of products, the recruitment and training of staff, and other important matters. This also calls for an assessment of the added value of specific measures.
Uneven and unequal spread of new technologies	Social services users, especially from below average economic and social backgrounds as well as the management and workers in the social services sector are currently largely excluded from a full participation in the digital opportunities that remain concentrated in the hands of a few powerful corporations. Therefore, European and national authorities should give priority to the needs of the social services users, workers & providers to benefit from full access to technologies and their opportunities, thus supporting the right to the best possible care, education and training, social support and empowerment and therefore contributing to the implementation of the European Pillar of Social Rights.
New partnerships	To boost innovation in the sector, collaboration with new partners such as start-ups and IT developers is a must. Additional effort is required to help organise this more effectively
Lack of research	There is still little scientific data on how digitalisation is changing the social services sector, therefore it is hard to assess its actual impact. Gathering reliable data is a first crucial step for developing effective strategies and activities

Source: Federation of European Social Employers and European Public Service Union (EPSU), 2019

- **OSH and working conditions-related consequences derived from the introduction of digital devices at work**

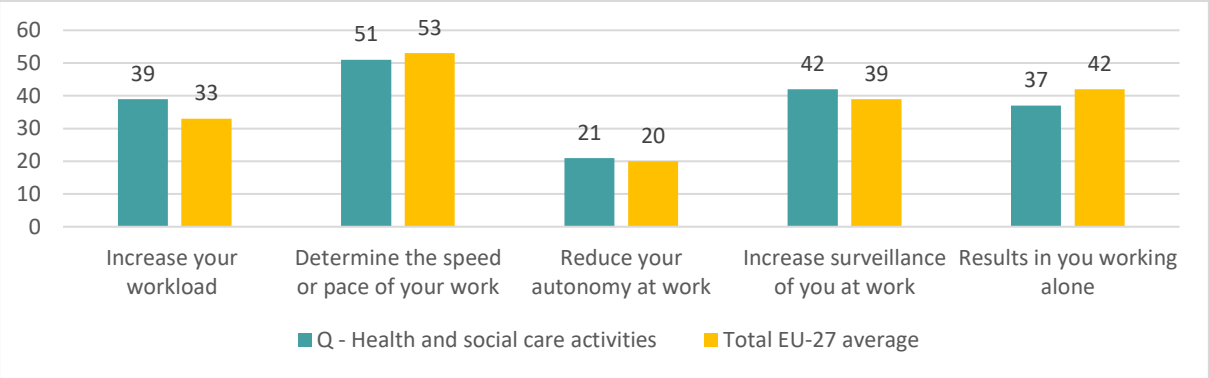
Digitalisation is playing an increasingly important role in the organisation of work within HeSCare sector establishments, with significant associated impacts on OSH-related issues for workers in terms of work speed, overall workload, acquisition of technical and digital skills or effects on the face-to-face interactions with colleagues and patients (EU-OSHA, 2022a; Kaihlanen et al. 2023).

On the positive side, digitalisation can be a key driver of high-quality, effective, and efficient OSH management (EU-OSHA, 2022a). For example, digital-based systems can perform both strenuous and more routine tasks such as patient lifting, reporting of scans or needle insertion, with positive effects on some work-related problems (MSDs, stress, etc). Digitalisation also has the potential to support OSH management in terms of the processes involved in carrying out risk assessments, inspections, OSH monitoring, prevention of work-related accidents and reporting.

On the negative side, the use of new technologies in general and digitalisation in particular, may also adversely influence the work of HeSCare sector workers by placing more cognitive demands on them and increasing psychosocial risks, increasing job loss fears (especially among older workers) or deskilling workers. In this regard, staying informed and well-trained vis-à-vis technological developments is a central challenge given the rapid pace of technological advances and their impact on working conditions and risks. New digital technologies also raise issues of privacy, security and ethics that demand careful consideration (EU-OSHA, 2023c; European Parliament, 2021).

Complementary to the previous information, the OSH Pulse 2022 Survey information source provides information on the main consequences identified by workers and derived from the use of digital devices at work, as presented in Figure 173. In this regard, the main consequence refers to the determination of the speed/pace of work (identified by 51% of respondents), followed by an increased surveillance at work and an increased workload (42% and 39% respectively). Meanwhile, other consequences related to working alone or reduced autonomy at work are less mentioned by respondents (37% and 21%, respectively). The comparison with the total economy does not provide a distinctive difference, perhaps a higher perception of increased workload in the case of HeSCare sector workers.

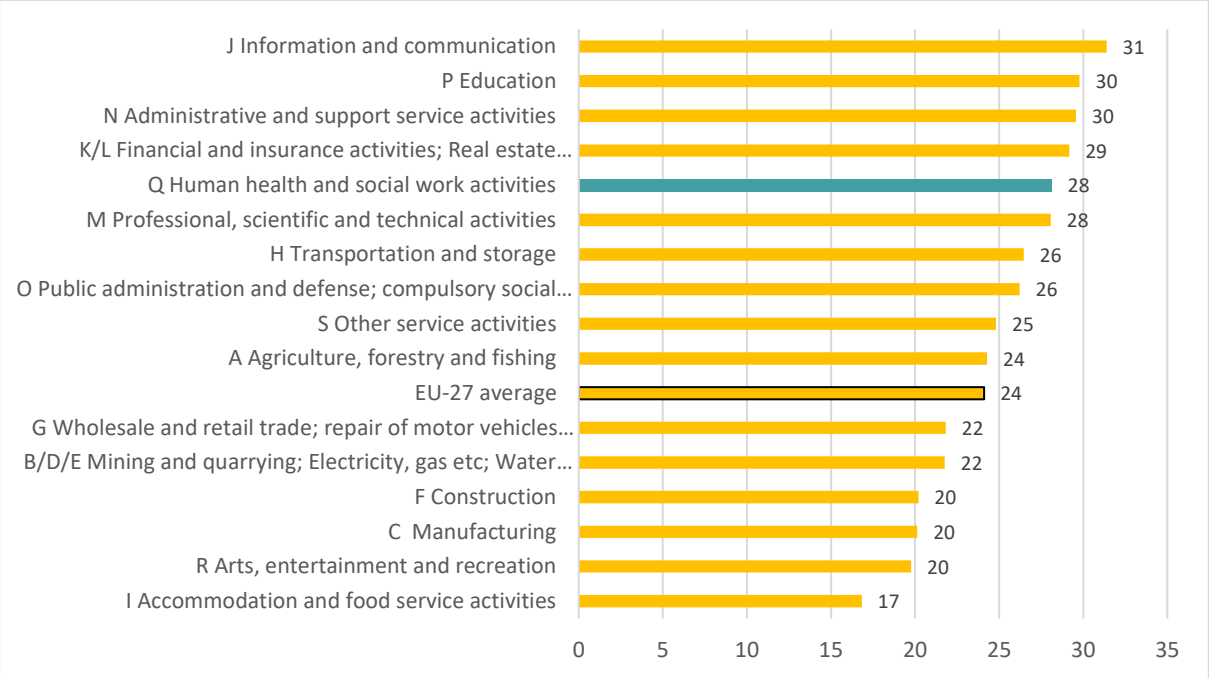
Figure 173: Main consequences identified by workers and derived from the use of digital devices at work, by sector, EU-27, 2022 (%)



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

The introduction and extensive use of digital technologies does not necessarily imply that the impacts derived from these digital technologies on the OSH of employees are always extensively discussed between managers and workers. According to the ESENER-19 survey, this discussion has taken place in nearly three out of ten HeSCare sector establishments (28%), which nevertheless reflects that the HeSCare sector is more active in this discussion than the average for the total economy (24%), and only surpassed by some sectors such as ICTs, Education, Administrative or Financial activities (Figure 174).

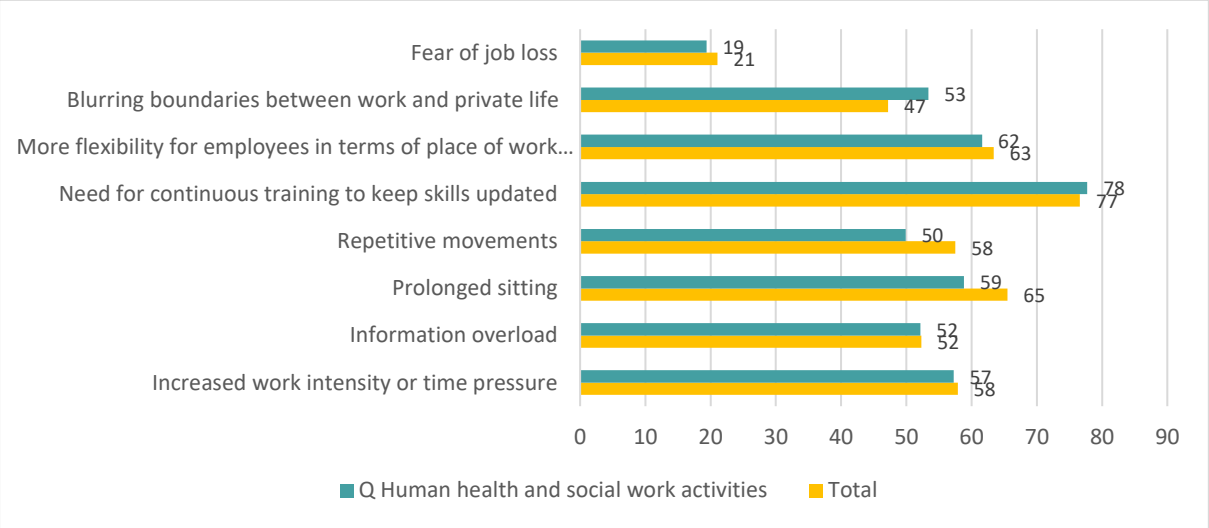
Figure 174: Percentage of establishments that have discussed the possible impacts of the use of digitalisation technologies on the health and safety of employees, by sector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: Responses only of those establishments that have used digital technologies for work, EU-27.

Meanwhile, the most discussed impacts derived from the use of digital technologies within HeSCare sector establishments refer to two main topics, namely the need for continuous training to keep skills updated and the need for more flexibility in terms of working place and time (78% and 62% of responses, respectively), followed by prolonged sitting, increased work intensity/time pressures, blurring boundaries between work and private life and, finally, information overload (59%, 57%, 53% and 52%, respectively) (Figure 175). In comparison to all sectors, impacts are relatively similar, where HeSCare sector establishments only seem to be more interested in topics related to the need for continuous training and the blurring boundaries between work and private life.

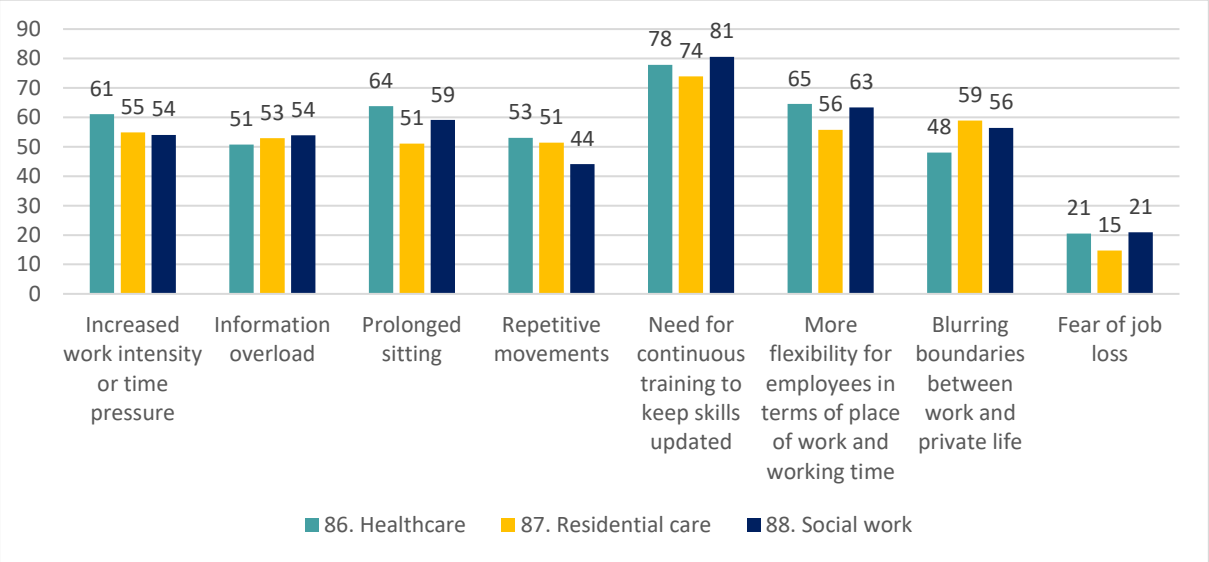
Figure 175: Possible impacts of digitalisation as indicated by establishments, by sector, EU-27, 2019 (% indicating yes)



Source: Panteia based on ESENER-2019
Base: Responses only of those establishments that have used digital technologies for work and have discussed the possible impacts of the use of such technologies, EU-27.

There are no important differences amongst the different HeSCare subsectors in the importance of the different discussed impacts, as can be seen in Figure 176.

Figure 176: Impacts discussed in the context of use of digital technologies within HeSCare sector establishments, by subsector, EU-27, 2019 (%)



Source: Panteia based on ESENER-2019
Base: Responses only of those HeSCare establishments that have used digital technologies for work and have discussed the possible impacts of the use of such technologies on the health and safety of employees, EU-27

Notwithstanding this, the need for continuous training to keep skills updated and the need for more flexibility in terms of working pace and time are slightly more identified by the social work subsector in comparison to the other subsectors, whereas other issues such as prolonged sitting or increased work intensity/time pressures are slightly more discussed in the healthcare subsector. To conclude, it is important to focus on the risks of digitalisation as well as the benefits, and ensure that workers are informed, trained, and have a voice in their design and the goals for which these new tools are used.

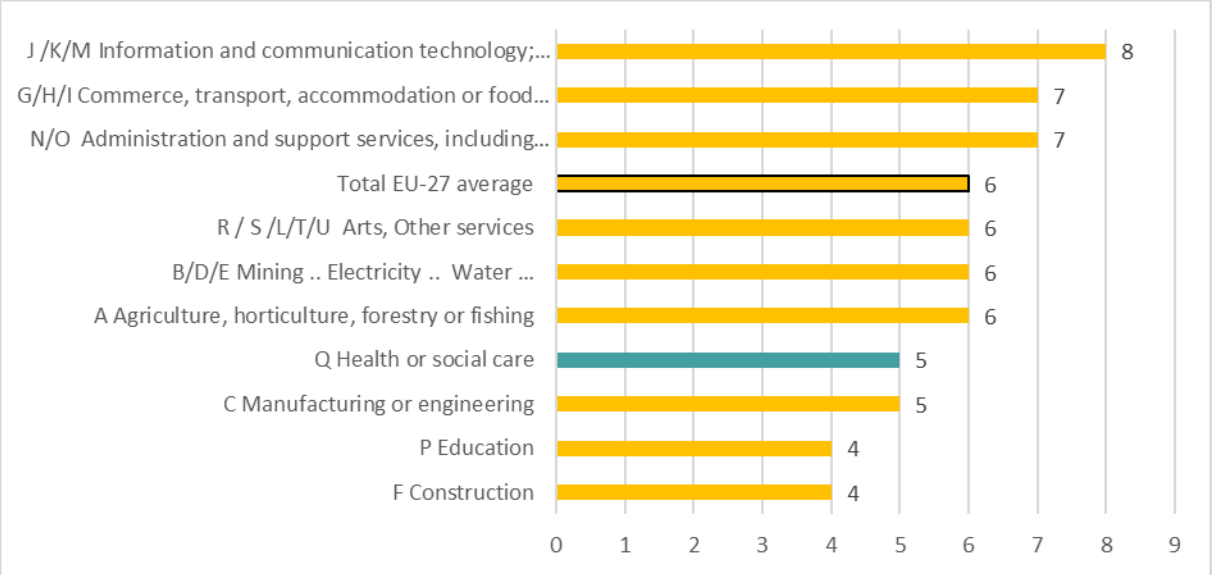
- **Presence of platform workers in the HeSCare sector**

Platformisation is another product of digitalisation. According to Eurofound[33], platform work is a form of employment in which organisations or individuals use an online platform to access other organisations or individuals to solve specific problems or to provide specific services in exchange for payment. Three parties are involved in the matching process: the client demanding work, the platform which manages the algorithm and the person who provides the work through the platform. It is work based on the performance of individual tasks or projects rather than a continuous employment relationship.

According to several interviewees and available studies, the presence of these platforms has been increasing in the field of care work (particularly elderly care, special needs care and childcare, amongst others), with some prominent national but also international examples such as “Care.com”, or “wecasa”, amongst many others. Thus, the number of such platforms in the sector has risen eightfold in a decade, from 28 in 2010 to 224 in 2020 (Hobden, 2022). The size of the EU platform economy in the domestic and care sector has grown to €1.5 billion in 2020 from €0.8 billion in 2016 (FEPS, 2023).

According to the OSH Pulse 2022 Survey data, approximately 5% of those in employment in the HeSCare sector earn some income working for an available digital platform, this percentage being relatively similar to the EU-27 average across all sectors (6%) (Figure 177).

Figure 177: Percentage of workers who earn most or at least part of their income working for a digital platform, by sector, EU-27, 2022 (%)



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

Platformisation has the positive effect of creating more work visibility for care workers, facilitating their employment. By way of contrast, this increase of platform work has resulted in more precarious forms of work organisation. This is intimately linked to the fact that platform workers can be considered as self-employed, and therefore do not fall under the OSH rules of the company that hires them and lack certain labour rights (EU-OSHA, 2021).

In this respect, interviewed trade union representatives stress the need to specifically deal with these platform workers, for instance in terms of new legislation regulating their working and OSH-related conditions. In this regard, the European Commission proposal for a Directive COM/2021/762 on

[33] See definition included in the European Industrial relations Dictionary, available at: https://www.eurofound.europa.eu/en/european-industrial-relations-dictionary/platform-work#:~:text=Definition,services%20in%20exchange%20for%20payment

improving working conditions in platform work[34] or the national initiatives adopted in this respect[35] are good examples of new legislative developments that might change the employment status and rights of platform workers once adopted (FEPS, 2023).

5.3.3 Other emerging contextual factors and drivers of change influencing OSH management practices

This section looks at other emerging contextual factors and drivers of change influencing OSH management practices in the HeSCare sector. All these contextual factors and drivers of change influence OSH management practices and ultimately the working conditions and the health and safety of the HeSCare workers. For this reason, although they fall "beyond" the field (or policy area) of OSH, it is important that they are considered in order to improve the OSH of HeSCare workers.

- **Increasing presence of an ageing population**

The ageing of the European population is one of the most prominent contextual factors with far reaching consequences for the European HeSCare sector. This increasing ageing process is explained by several intertwined factors, including low birth rates and a higher life expectancy as a result of advancements in the healthcare and medical treatments as well as improvements in living conditions (European Commission, 2023d). According to Eurostat's projections, at the beginning of 2022, approximately 21.1% of the total population in the EU-27 could be categorised as older people (above the age of 65), representing around one-fifth of the population. Looking to the future, this share is expected to increase in the coming three decades, whereby in 2050 it is expected that this age group will represent approximately 3 out of ten people in Europe (29.5%) (or 149.2 million people), and those aged over 80 will represent one out of ten Europeans (11.3%) (Eurostat, 2023b).

This positive trend in people living longer lives will result also in a rising demand for healthcare services[36] and an additional pressure to expand and adapt HeSCare services for the elderly population. First, the increase in life expectancy will lead to an increase in the burden of specific diseases (such as Alzheimer's disease and other dementias and cancers) on health systems. Second, the current changes in family patterns (particularly the decline of multi-generational households and multigenerational healthcare reliance patterns, the decline of household size, the increasing participation of women in the labour market or the re-shuffle of traditional household responsibilities in double-income households, amongst other factors) will result in an increased outsourcing of care responsibilities in the coming decades to external social long-term care services. Many elderly people will require such support to maintain their quality of life and independence. Third, the ageing process of the general population will also negatively affect the pool of potential middle-aged carers who will be able and willing to provide the required care for the dependent elderly within the family network, which will likely result in the further externalisation of these care responsibilities (Eurostat, 2021a; FEPS, 2023; United Nations, 2016).

Of course, this rise in demand for HeSCare services is also associated with increasing funding needs for the sector. In this sense, and according to several interviewees, most of the existing healthcare systems in Europe are currently undergoing more and more difficulties to finance their expensive HeSCare services due to a variety of reasons including rising service demand, higher expenses and high costs. Indeed, financial sustainability is one of the key future challenges for the HeSCare sector (ESPN, 2020; FORESEE, 2022).

- **Existing (and increasing) labour shortages, coupled with an ageing workforce in the HeSCare sector**

The HeSCare sector has been confronted with the challenge of finding and retaining qualified healthcare professionals for years, which has resulted in an acute labour shortage problem. In this regard, many of the interviewees and the latest available evidence on labour shortages in Europe confirm that several

[34] More information available at: https://ec.europa.eu/commission/presscorner/detail/en/ip_21_6605 and https://www.europarl.europa.eu/news/en/press-room/20240205IPR17417/provisional-deal-on-first-eu-wide-rules-for-platform-workers

[35] More information available at: https://www.eurofound.europa.eu/topic/platform-work#s-04. See also the activities conducted by Eurofound in this domain (more information available at: https://www.eurofound.europa.eu/topic/platform-work#s-01

[36] According to some recent estimations, only 20% of the EU 65+ population in need report to receive care, whereas an additional 50% report they need more care (either formal or informal) (European Commission, 2021b).

healthcare related occupations are at the top of the list of occupations with severe shortages, including both general medical doctors and specialist doctors, nursing professionals, healthcare assistants and physiotherapists (ELA, 2023). A lack of attractiveness of some of the HeSCare subsectors makes it difficult to attract and retain qualified employees, together with a high turnover/migration to other more attractive sectors (including competition between the health and the care sectors), are the main reasons at the root of this problem (Eurofound, 2020a; European Commission, 2018) as already identified in previous sections of this report and confirmed by interviewees. These labour shortage problems negatively influence the resilience and sustainability of the sector. Unfortunately, this labour shortage problem is expected to be exacerbated in the coming years for a number of reasons. Whereas the demand for healthcare service workers is likely to continue to surge and increase in the coming decades due to the general ageing process of the population (Carroll, 2023), the HeSCare sector workforce is itself confronted with an ageing process, which may result in insufficient numbers of new recruits to replace those who are retiring. For instance, according to the WHO, around 40% of medical doctors are already aged 55 years or older in 13 European countries, which poses a significant challenge to the sustainability of the workforce (WHO, 2022).

Moreover, the presence of an older workforce in the HeSCare sector has potential consequences regarding OSH issues and its effective management by establishments. In this regard, age is often linked to changes in health and ability[37] (reductions in aerobic power, muscle strength, stature, dexterity, mobility, higher probability to suffer from chronic health problems such as cardiovascular disorders and musculoskeletal diseases, etc) (EU-OSHA, 2016c). This report has shown that the HeSCare sector is particularly exposed to several musculoskeletal and psychosocial risks, whose cumulative exposure are likely to impact negatively on the health and functional ability of older workers (EU-OSHA, 2022a).

Finally, several interviewees stress the increasing attention and efforts that public authorities and enterprises/organisations will have to put not only towards attracting but also to retain the workforce (for instance, offering better working conditions, including pay levels). In this regard, some interviewees and literature sources stress the importance of assuring good quality and affordable childcare facilities to facilitate and ensure the participation of middle-aged parents in the HeSCare labour market (FEPS, 2023).

- **Increasing presence of Global Care chains**

The term “global care chains” was originally developed in 2001 by Hochschild to define “a series of personal links between people across the globe based on the paid or unpaid work of caring” (Hochschild, 2001) and refers to the increasing transnational component of the provision of care. Especially in wealthier countries, it is becoming more and more common to have situations in which a person/family hires a migrant worker to care for a family member(s). The majority of these global care workers are migrant women with low or medium-level education levels who, usually work in the informal economy (especially as personal carers) and have no recognised skills in the field.[38] This situation often implies significant shortcomings in terms of their labour conditions, including limited access to social security, low pay level, high levels of informality and lack of collective representation (EIGE, 2021a). These risks are particularly significant for live-in workers and may also result in serious human rights violations (Sachetti et al, 2022).

The reasons behind this type of global care are explained by the increasing participation of women in the job market that has led to a lack of unpaid domestic care work at home. In turn, this situation creates a new demand for paid care services that is filled with migrant care workers, which is often the cheapest and easiest solution on the market, especially when there is a lack of publicly subsidised services (ILO, 2018b; Pérez Orozco, 2009). According to several interviewees and consulted studies, this phenomenon has an impact socially, culturally, and economically in both the country of origin of the worker, as well as the country in which they work, and it is expected to continue to grow in the next decades due to the increase of women’s participation in the labour market (European Commission, 2020) and demographic changes (ageing societies, increasing life expectancy, smaller households). In turn,

[37] Health is not only influenced by age considerations but by numerous other external factors including lifestyle, exercise and nutrition.

[38] Over-qualification is also a rather common phenomenon among skilled migrant women working in the care sector (e.g., qualified medical nurses), who encounter difficulties in validating their qualifications and therefore tend to face a higher risk of being disadvantaged by unfair recruitment practices (EIGE, 2020).

this situation implies now and, in the future, an additional challenge for companies, organisations or labour inspectorates to engage in OSH–related activities for these multicultural and multilingual groups (EU-OSHA, 2014).

- **Increasing importance of cross border healthcare practices**

Linked to the previous point, recent literature and several interviews conducted in the context of this study show that cross-border health practices (movement of patients, medical doctors and nurses, cross-border provision of healthcare services, etc) are becoming a more prominent phenomenon in the EU and are likely to expand in the future due to several reasons (Țoc et al. 2021). Firstly, technological advances in information systems and communication allow patients or third-party purchasers of healthcare to seek out quality treatment at lower cost and/or more immediately from healthcare providers in other countries. Secondly, increasing portability of health cover, as a result of regional arrangements with regard to public health insurance systems or developments in the private insurance market, are also further increasing patient mobility. Finally, the development in the last few years of several EU initiatives (Directive 2011/24/EU[39]; the EU4Health programme 2021-2027[40]) is likely to foster these cross-border health practices in the future. These initiatives have received an additional impetus due to the COVID-19 pandemic (European Committee of the Regions, 2020). An open question remains whether the cross-border migration of healthcare workers may exacerbate the already unequal distribution of healthcare workers across the EU, favouring central and rich areas against more remote, rural areas (Pál et al. 2021).

- **Increasing trend towards the provision of home-based and community-based services**

According to information collected from interviews and different studies, there is an increasing trend in the provision of more community-based care models such as home-based and person-centred care services. The EU has implemented various policy frameworks that stress this trend towards the provision of home/community-based care, such as the European Pillar of Social Rights, the EU Disability Strategy 2021-2030, and the EU Care Strategy (European Centre for Social Welfare Policy and Research, 2023). Indeed, the European Pillar of Social Rights includes a dedicated principle on the “right to affordable long-term care services of good quality, in particular home-care- and community-based services” (Principle 18, EPSR). Also, the European Disability Strategy 2021-2030 emphasises that “independent living requires differentiated landscape of quality, accessible, person-centred and affordable, community- and family-based services” (European Commission, 2021c). The ratification by all EU Member States and the EU itself of the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) did also give an initial impetus to this approach (UNCPRD, 2006). EU Structural and Investment Funds have also fostered the provision of these community/person-centred social care services.

Some interviewed stakeholders suggest that this home-based/community-based care provision gives rise to new OSH risks for care workers, who often provide this type of care alone or in pairs. Examples include increased stress, loneliness (workers are bound to stay in one place only, and oftentimes left alone), less support from other colleagues and therefore more prone to suffering from violence, bullying and harassment from service users or with less OSH-related resources to carry out their activities. Also, some interviewees suggest an increased workload, usually explained by an increase in the demand for care documentation and more complex documentation requirements. This transition also underlines the importance of assessing skills and training needs and improving opportunities for professional development, for instance in terms of project management skills, intercultural communication skills, self-

[39] The cross-border healthcare directive essentially arranges for people who have health insurance in an EU country entitlement to have a European Health Insurance Card. This card intends to make it easier for EU citizens to be treated in other EU countries (or in Iceland, Liechtenstein, Norway, or Switzerland) in case they suddenly fall ill or have an accident when visiting that country. With the European Health Insurance Card, the treatment may be free, or the person is required to pay the costs, which are subsequently reimbursed, this depends on how healthcare is arranged in that country. Cross-border healthcare not only relates to patients getting care in another member state, but it also includes cross-border movement of expertise, both in terms or workers and resources, as in knowledge.

[40] More information available at: https://health.ec.europa.eu/funding/eu4health-programme-2021-2027-vision-healthier-european-union_en

defence skills, interprofessional collaboration skills or digital literacy and communication skills, amongst others (European Centre for Social Welfare Policy and Research, 2023).

- **Lifestyles changes**

Increasing demands for HeSCare services is not only explained by age-related issues but also by existing lifestyle-related diseases caused by the so-called “civilisation illnesses” (EU-OSHA, 2014). Thus, changes in nutritional habits and dietary patterns, smoking, consumption of alcohol/drugs or insufficient physical activity are leading to an increase in the presence of some specific diseases such as obesity, diabetes, cardiovascular diseases, cancer, or some specific chronic diseases. Also, another recent issue that has come to the forefront refers to the relationship between mental health and modern lifestyles, often involving high levels of stress, anxiety, and depression. For instance, tobacco consumption is the largest avoidable behavioural risk factor to health in the EU and the most significant cause of premature death across EU countries, accounting for about 780.000 deaths in 2019 (OECD, 2022). Notwithstanding this, lifestyle changes have made people, particularly in wealthy economies, more conscious and more aware of health-related issues, seeking better preventive care through behavioural changes and early intervention in order to avoid future health issues. The promotion of healthier lifestyles is essential for the HeSCare sector to avoid even further costs (OECD, 2019). Recent Eurostat data show that the spending on preventive healthcare among EU Member States in 2020 ranged between 1.0 % and 5.6 % of the healthcare expenditure (with an average of 3.4%), while the rest was consumed by treatment (Eurostat, 2021b).

- **Climate change**

It is a well-known fact that in recent decades, the world has been facing many new weather conditions associated with the so-called “climate change” phenomenon. This factor is likely to have an impact on the HeSCare sector. Climate change (better reflected in an increase in temperatures, UV radiation or extreme weather conditions) has a significant impact on the workers’ health and safety for all sectors, including the HeSCare sector (EU-OSHA, 2023e). As an example, rises in temperature and more frequent extreme heatwaves increase the danger of heat stress, and may result in dangerous situations like heat stroke, heat exhaustion, rhabdomyolysis, heat syncope, heat cramps, heat rash and even death. Based on a study conducted in Germany, 95% of nurses treating COVID-19 patients wearing Personal Protective Equipment (PPE) during heatwaves reported physical exhaustion, 93% indicated breathing problems and 86% concentration impairment (Climate ADAPT, 2023).

5.3.4 Evolution of relevant technical, economic, social, and organisational factors on OSH management over time

Table 24 shows the evolution of the reported presence of economic, social and organisational factors in EU-27 HeSCare establishments between 2014 and 2019.

A very important indicator of both general and psychosocial OSH management practices is the presence of employee representation. While the presence of general employee representation has increased only very slightly (less than 1%), the presence of health and safety representatives and/or committees has increased by 3% over the years. All forms of employee representation are significantly more common in the HeSCare sector than in the total economy.

Another important indicator of OSH management practices is whether or not the establishment has had a visit from the labour inspectorate in the last 3 years. The number of establishments reporting such a visit has fallen by 10% between 2014 and 2019: from 46% to 36%.

The economic situation of HeSCare establishments has clearly improved between 2014 and 2019, with 63% of establishments reporting a “very good” or “quite good” economic situation in 2019 compared to 47% in 2014. A similar increase has taken place in the EU-27 economy as a whole.

Most establishments in the HeSCare sector (59% in 2019) form a single organisation, rather than being part of a multi-establishment organisation. This number has increased only very slightly since 2014.

While working from home has increased by 3%, it was still very uncommon in the HeSCare sector in 2019: with only 13% of establishments reporting any employees working from home.

Table 24: Percentage of EU-27 HeSCare establishments reporting presence of economic, social and organisational factors in ESENER-2014 and ESENER-19 (%)

	2014	2019
Employee representation:		
..general *	42	42
..health and safety *	68	71
Visit by labour inspectorate in last 3 years *	46	36
Economic situation very good or quite good *	47	63
Establishment is single organisation *	58	59
Do any employees work from home *	10	13

Source: Panteia based on ESENER-14 and ESENER-19
* Difference between 2014 and 2019 is statistically significant at the 0.05 level.

6. Worker participation in OSH management practices in the HeSCare sector

The active participation of workers in OSH management practices is a key element ensuring their effectiveness. Active participation is expected to increase awareness on OSH issues as well as enhance the employees' commitment to health and safety which will also contribute to improved safety, health and well-being of workers (EU-OSHA, 2013b). Through close cooperation of the social partners (trade unions, employers organisations and, where applicable, governments) OSH can be managed in a more effective way, leading to win-win situations (Federation of European Social Employers and European Public Service Union, 2019).

Interviews with stakeholders confirmed that social dialogue may play a key role in facilitating the implementation of OSH legal obligations. Several interviewees felt that through social dialogue, with representatives of employees and employers working together, it is possible to reduce obstacles and increase the effectiveness of legal obligations.

Chapter 6 analyses various elements related to the participation of HeSCare workers in OSH management practices in the sector. First, the chapter describes the existing formal forms of employee participation in OSH management practices. Second, the chapter examines the discussion of OSH between employee representatives and the management, as well as employee involvement in the design and implementation of OSH related measures.

6.1 Extent and forms of worker participation in OSH management practices

Workers' participation can be implemented as a formal or informal process. Formal participation is usually established according to legal regulations and specific rules or procedures. It can be achieved not only through involvement of workers councils, trade unions or formal workers OSH representatives, but also through safety circles, attitude surveys, suggestion schemes, etc. Informal solutions are mainly based on discussions and exchange of views between managers and employees (EU-OSHA, 2013b).

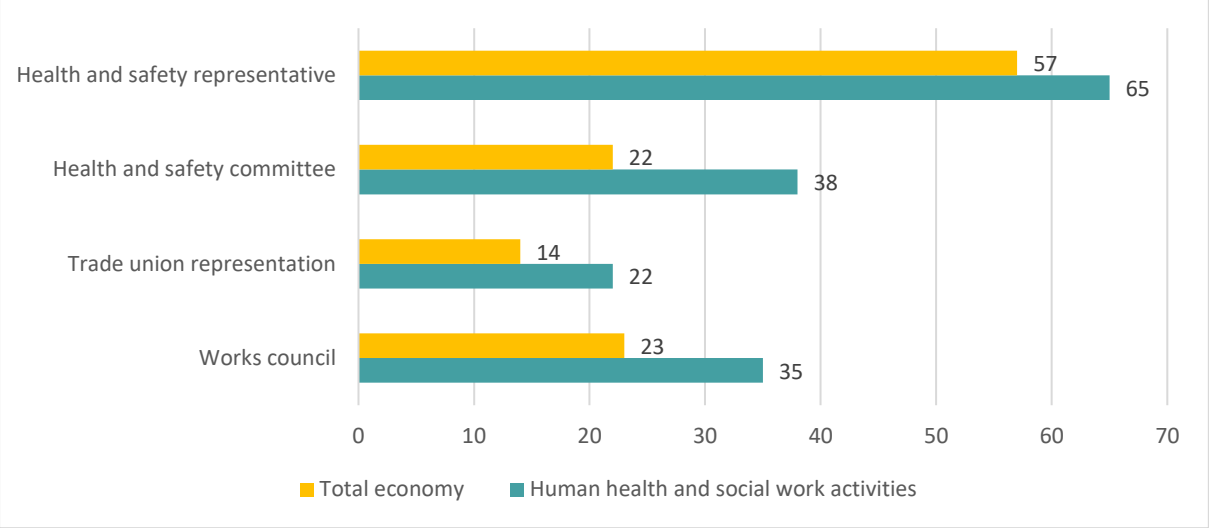
In the residential care and social work subsectors, several challenges relating to social dialogue have been identified, including a lack of proper collaboration between employers' representatives and workers' representatives and a low representation of care workers in trade unions. One reason for the lack of proper collaboration between trade unions and employers' representatives is the fact that in some countries, there is either no or only a weak representation of social care in unions or employer associations. In Germany for example, social dialogue is particularly difficult in the long-term care sector, as very few care workers belong to trade unions. Also, there are difficulties in reaching out to care workers in small structures, which makes it challenging to address their issues. In Belgium, the importance of having diversity in representation of social care workers is emphasised, considering the various professions (nurses, assistant nurses, psychologists, physiotherapists), cultural backgrounds, and roles involved in the care sector (European Centre for Social Welfare Policy and Research, 2023).

Workers' participation in the management of OSH is an obligation resulting from legal requirements. European countries have different ways to appoint health and safety representatives. In some countries the workforce directly elects their representatives, whereas in other countries it is the employer, or the employer and employees together, who select them. Moreover, there are differences between countries concerning thresholds for choosing representatives and creating committees, as well as differences in their functions and competences (EU-OSHA, 2022a). Thus, legal regulations as well as guidance and standards related to OSH management have an influence on the development of workers participation in OSH activities (EU-OSHA, 2013b).

According to ESENER-19 data, overall, a **health and safety representative is the most common formal form of employee participation** (Figure 178). 65% of HeSCare establishments indicate that they have health and safety representatives; 38% health and safety committees, 35% works councils, and finally, 22% trade union representation. The comparison with the EU-27 average for all sectors shows that the HeSCare sector has a higher presence of formal forms of employee participation. The presence of health and safety representatives in EU-27 establishments reaches 57% of the

establishments, whereas health and safety committees and works councils are present only in 22% and 23% of the establishments, respectively.

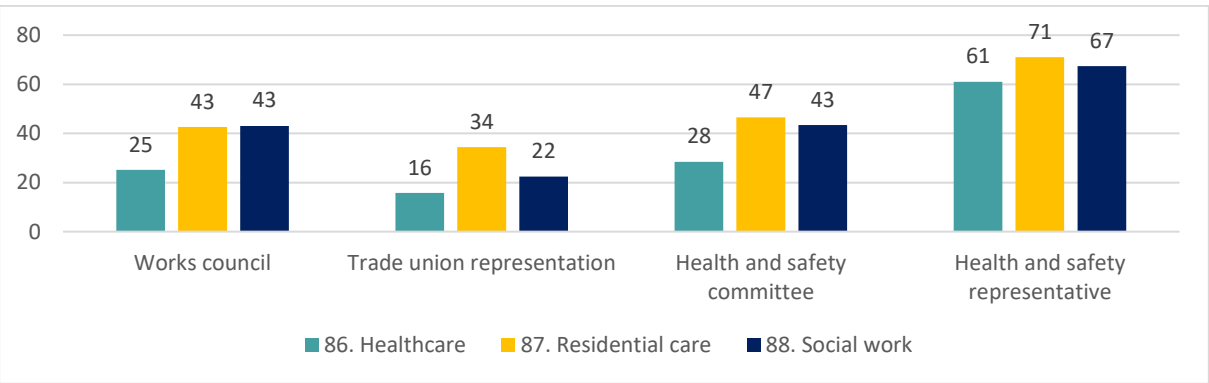
Figure 178: Percentage of establishments indicating forms of employee participation, by sector, EU-27, 2019 (% indicating yes)



Source: Panteia based on ESENER-19
Base: All establishments in the EU-27.

At subsector **level, the presence of forms of employee participation is higher among residential care subsector establishments and lower among healthcare establishments**. For instance, Figure 179 shows that health and safety representatives can be found in 71% of establishments in the residential care subsector, compared to 67% in social work and 61% in healthcare establishments. Similarly, there are health and safety committees in 47% of residential care establishments, whereas their presence is lower in the social work and in the healthcare subsectors (43% and 28% respectively).

Figure 179: Percentage of HeSCare sector establishments indicating forms of employee participation, by subsector, EU-27, 2019 (% indicating yes)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27.

The presence of employee participation increases with the establishment size, for all forms of participation (as shown in Figure 180). For example, 86% of establishments in the HeSCare sector with more than 250 employees have health and safety representatives, in contrast with 68% of establishments with 10 to 49 employees, or 54% of establishments with 5 to 9 employees. Along these lines, there is a health and safety committee in 86% of establishments with more than 250 employees, a percentage that falls to 74% among establishments with between 50 and 249 employees, 38% among establishments with 10 to 49 employees and 21% among establishments with 5 to 9 employees.

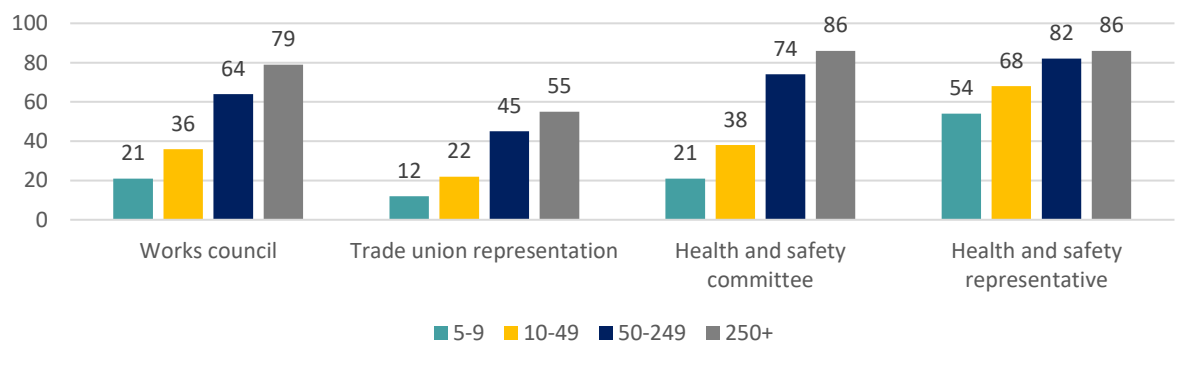
Box 13: Further analysis of ESENER-19 data variables relating to the relationship between size classes, employee representation and OSH management

Further analysis of ESENER-19 data variables relating to the relationship between size classes, employee representation and psychosocial OSH management (see Methodological appendix 2) show that:

- Larger establishments tend to give more attention to OSH management, but this difference diminishes considerably when employee representation is factored in. This suggests that the differences between size classes is largely attributed to differences in employee representation, with larger establishments more likely to have such representation, resulting in greater attention to OSH management. This trend is observed across all HeSCare subsectors and the total economy. Moreover, in certain Member States, some form of employee representation is mandatory, particularly for companies with over 50 workers, where the establishment of a health and safety committee or equivalent is compulsory.
- Similarly to general OSH management, any differences in attention to psychosocial OSH management between size classes are greatly reduced when employee representation is considered. However, this effect is observed only in the healthcare subsector and the total economy.
- In the residential care and social work subsectors, there are no significant differences in attention to psychosocial OSH management between size classes. This suggests that smaller establishments in these sectors are already performing comparably to larger establishments in terms of psychosocial OSH management.
- The associations between both forms of employee representation (general representation and health and safety representation) and attention to psychosocial OSH management are strongest in the healthcare subsector and the total economy.
- Interestingly, in the social work subsector there is no significant association between attention to psychosocial OSH management and the presence of health and safety-related employee representation.
- These findings suggest that employee representation plays a crucial role in shaping psychosocial OSH management practices, particularly in the healthcare subsector and the total economy. Smaller establishments in residential care and social work subsectors seem to perform well in terms of attention given to psychosocial OSH management even without significant differences based on size, indicating that other factors may be influencing their practices.

Source: Panteia based on ESENER-19

Figure 180: Percentage of HeSCare sector establishments indicating forms of employee participation, by size, EU-27, 2019 (% indicating yes)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27.

An analysis by country shows that there are significant differences (Table 25).[41] The countries with the highest percentages of establishments in the HeSCare sector with health and safety representatives are Bulgaria (94%) and Denmark (93%), whereas Portugal and Latvia are the countries where the presence of this form of representation is lower (27% and 30% respectively). Regarding the presence of health and safety committees, these are particularly extended in Denmark and Malta (with 83% and 78% of the establishments having this form of representation), whereas their presence is lower in Hungary and the Czech Republic (only 8% of the establishments, in both countries). As for works councils, Bulgaria and Denmark are the countries with the highest share of establishments with this type of representation (78% and 71% respectively), compared to the lowest shares in Latvia and Portugal (3% and 4% respectively).

Table 25: Percentage of HeSCare sector establishments indicating forms of employee participation, by country, EU-27 (+ CH, IS and NO), 2019 (% indicating yes)

Country	Works council	Trade union representation	Health and safety committee	Health and safety representative
AT	32	0	17	77
BE	29	42	41	37
BG	78	19	57	94
CY	0	46	47	41
CZ	8	19	8	58
DE	24	0	37	77
DK	71	76	83	93
EE	33	6	15	61
EL	25	31	26	32
ES	40	28	31	53
FI	49	42	45	72
FR	67	43	55	41
HR	39	18	37	74
HU	12	6	8	57
IE	44	27	47	75
IT	42	29	12	87
LT	46	25	30	87
LU	58	0	21	85

[41] The four main forms of representation identified by the ESENER-2019 questionnaire (namely “works council”, “trade union representation”, “health and safety committee” and “health and safety representative”, in Q350) are not available in all Member States.

Country	Works council	Trade union representation	Health and safety committee	Health and safety representative
LV	3	33	10	30
MT	42	35	78	85
NL	36	11	30	48
PL	14	24	30	36
PT	4	18	20	27
RO	41	25	40	87
SE	0	76	46	84
SI	40	51	0	47
SK	28	31	30	54
EU	**35**	**22**	**38**	**65**
CH	30	9	22	33
IS	11	56	28	65
NO	17	87	57	92

Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27.

The main distinction in the level and nature of bargaining in the healthcare subsector can be found between public and private sector providers. In the public healthcare sector, collective bargaining is centralised in most of the countries. The main differences across countries are associated with the nature of the employers involved in the negotiation and the level of bargaining (national or regional/local). Overall, the collective bargaining coverage of workers in the healthcare subsector is very high in most of the countries, particularly in the public sector (Eurofound, 2022a).

Overall, social dialogue helps to ensure the active involvement and participation of both management and employers' organisations, and workers and their representatives (Federation of European Social Employers and European Public Service Union, 2019). Real social partnership and free trade union activity is key to improve working conditions and salaries, as well as staff qualification, by way of collective agreements (Federation of European Social Employers and European Public Service Union, 2019). In July 2023, the European Commission created the Social Dialogue Committee for Social Services following the request from the representative EU social partners, the European Federation of Public Service Unions (EPSU) and the Federation of European Social Employers. The social services sector has long been characterised by low pay (Eurofound 2021), strenuous working conditions, precarious employment conditions and damaging gender stereotypes. Moreover, to attract and retain skilled workers, it is necessary to advance training and skills, improve working conditions and make care jobs more attractive. An important solution to address these issues is social dialogue and collective bargaining.

In the case of domestic care work, some interviewees highlighted that domestic workers work in an isolated manner, which limits workers' representation and access to social dialogue. Moreover, domestic workers must frequently deal with poor employment conditions and they are often financially dependent on their customers because of limited other labour market opportunities, informal employment relationships, etc. (Mousaid et al, 2017). This is also exacerbated by the fact that "domestic servants"

are not covered by the scope of the EU OSH Framework Directive (89/391/EEC) that establishes the basis of OSH management, including the responsibility of the employer, rights and obligations of the workers, requirement of continuous risk assessment, as well as the prevention and management of specific risks at the workplace. Article 3 of this Directive defines “worker” as any person employed by an employer, including trainees and apprentices, but excluding “domestic servants”. The Directive does not provide a definition of the term “domestic servants”, leaving it open to interpretation. In this regard, a restrictive interpretation of such exclusion would imply that “domestic servants” are only a part of the broader category of domestic workers and that only they are excluded from the scope of the EU OSH Framework Directive. With such an exclusion, “domestic servants” are not protected by an important part of the EU OSH legislation, including relevant individual Directives that set out the principles and instruments of the Framework Directive with regards to specific risks at work. Interviewees confirmed that a large percentage of domestic workers are undeclared workers, and many of them are immigrants, which makes them particularly vulnerable.

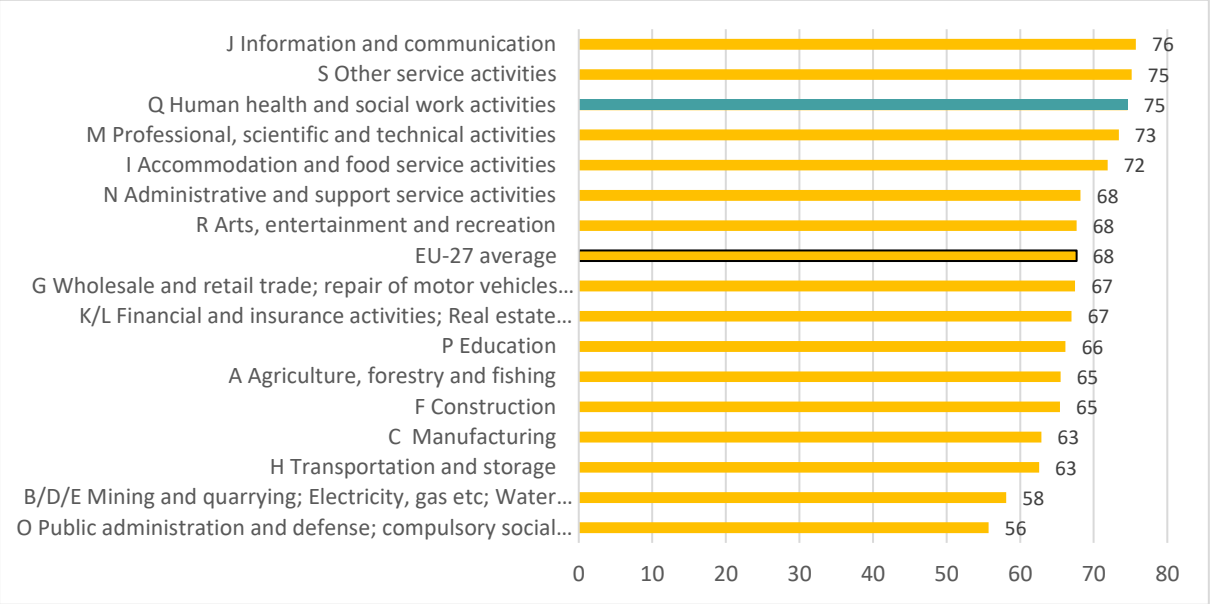
There are, however, examples of good practices of social dialogue in the sector. In Belgian domestic work, there is very strong social dialogue, which makes collective bargaining and discussion on OSH possible. Social dialogue has played a key role in the design and preservation of the Belgian service voucher system, a recognised good practice, which tackles the lack of bargaining power of domestic workers. The Belgian Service Voucher System is conceived as a formal employment scheme, organised through a triangular employment relationship between the domestic worker, a service voucher company (the employer), and the customers (EU-OSHA, 2022d, Mousaid et al. 2017).

Social partners also play a crucial role in times of crisis or change. The COVID-19 pandemic had a tremendous impact on the HeSCare sector, and the valuable contribution made by social dialogue and worker participation during that period cannot be denied. At the onset of the COVID-19 crisis (25 March 2020), european social partners issued a “Joint statement on COVID-19 outbreak: the impact on social services and needed support measures”. In the letter, concrete support measures were suggested, including ensuring the continuity of services; guaranteeing income support and preventing job loss; equipping workers with adequate protection material; ensuring safety protocols in residential settings; etc. Only three weeks later (17 April 2020), a “Joint letter to call to action to tackle the lack of protective equipment to the European Commission” was issued. The European Commission was specifically asked to provide support to develop awareness in the Member States that social care is to be prioritised in relevant measures to protect staff and beneficiaries; to ensure that an adequate share of PPE is reserved for and made available to social care workers; to urge Member States to initiate testing in residential settings; etc. (FORESEE, 2022).

At country level, the role of social dialogue in the COVID-19 crisis was varied. While in some countries (Romania, Poland), it was reported that no such dialogue had been taking place, in other countries, initiatives were developed. The range of topics covered include the negotiation of a working time reduction (Austria), of bonus payments (several countries including Austria, the Czech Republic, France), of a social agreement framework directed towards improving working conditions (Belgium), a social partner fund to support employees returning to work and a solidarity fund for employees (both in France), initiatives on health risk assessments (Germany, France) and the implementation of hotlines supporting staff (Austria, France). Furthermore, unilateral social partner activities were brought about (establishment of a network in Greece and of a lobbying offensive in Austria) (FORESEE, 2022).

Finally, the ESENER-19 survey offers information on the proportion of establishments allowing employees to take more decisions on how to do their job. Data available show that in the HeSCare sector 75% of the establishments allow their employees to make more decisions on how to carry out their work (Figure 181). Looking at the EU-27 average across all sectors, 68% of EU-27 establishments allow employees to take more decisions on how to do their job. The HeSCare sector is among the three sectors with the highest shares, together with other service activities (75%) and Information and communication (76%). By subsector, some differences can be observed: the number of establishments is higher in the social work and residential care subsector (79% in both cases), whereas in the healthcare subsector, it goes down to 69%.

Figure 181: Percentage of establishments allowing employees to take more decisions on how to do their job, by sector, EU-27, 2019 (%)



Source Panteia based on ESENER-19
Base: All establishments in the EU-27.

6.2 Discussion of OSH between employee representatives and the management

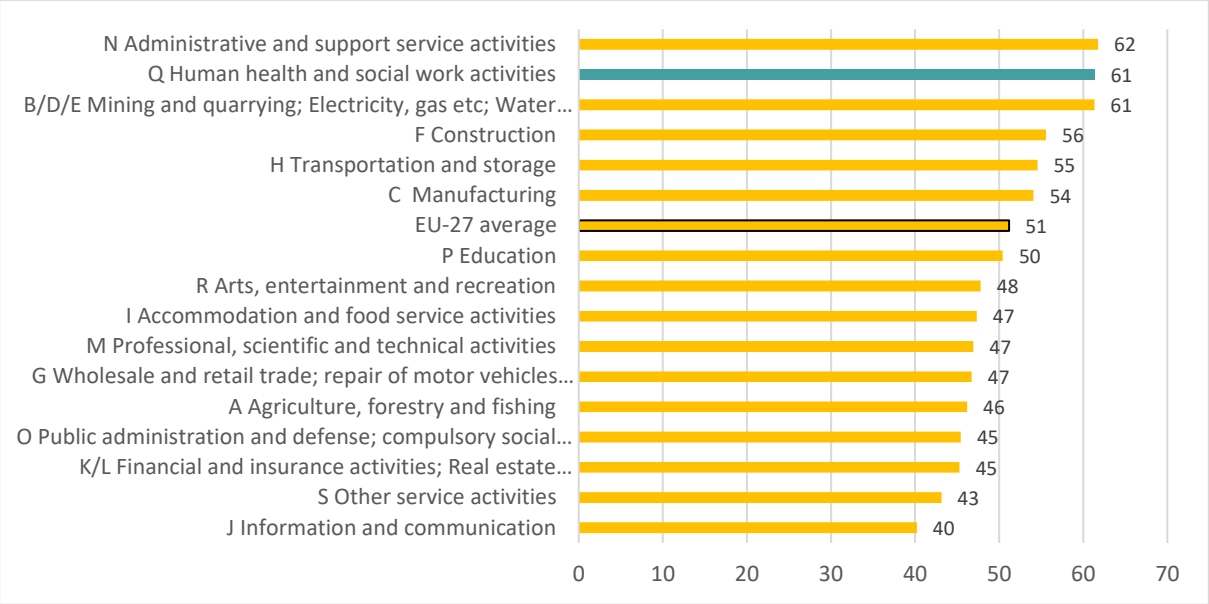
6.2.1 Discussion between employee representatives and management

Depending on the level of employees' influence on management decisions, participation can be informative, consultative, or delegative (EU-OSHA, 2013b).

- Informative participation, which is the weakest one, means that workers and/or their representatives receive information in order to enable them to become familiar with OSH management.
- Consultative participation assumes the exchange of views and establishment of a dialogue between the employees and/or their representatives and the employer, which requires two–way communication.
- Delegative participation, which is the strongest one, is based on increased discretion and responsibility of employees to organise and do their jobs without reference back.

The ESENER-19 survey provides information on establishments where health and safety is regularly discussed between employee representatives and the management, particularly among those establishments with formal forms of employee participation. Available data show that 61% of HeSCare sector establishments with formal employee representation structures are characterised by regular discussions on OSH issues between employee representatives and the management (Figure 182). **Compared with other economic sectors, this share is amongst the highest shares at EU level,** only slightly behind Administrative and support service activities (62%), and similar to the Mining and quarrying; Electricity gas etc.; Water supply, sewerage, etc. sector (61%). The lowest share is for Information and communication (40%).

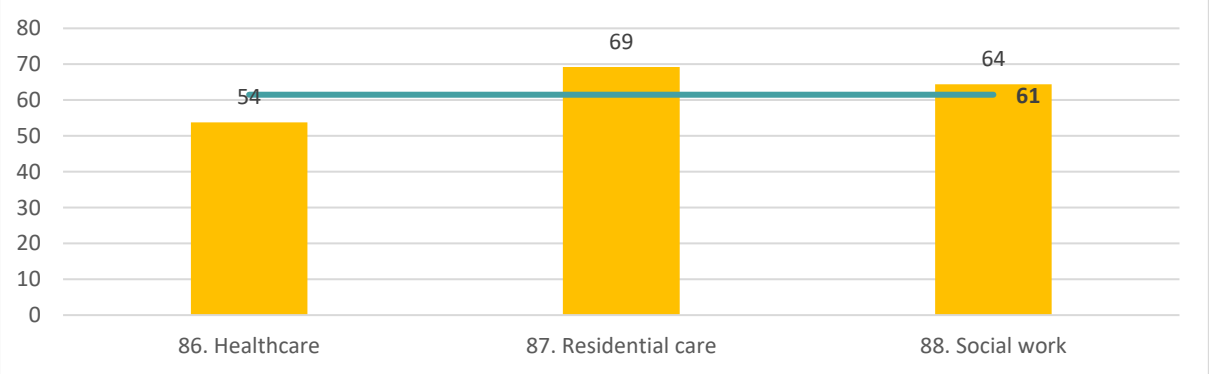
Figure 182: Percentage of establishments that indicate that health and safety is regularly discussed between employee representatives and the management, by sector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: Only establishments with a works council, a trade union, a health and safety committee or another type of health and safety representative,EU-27.

By subsector, residential care is the subsector with a higher presence of establishments that indicate that health and safety is regularly discussed between employee representatives and the management (69%), followed by social work (64%). The share in the healthcare subsector is 54% (Figure 183).

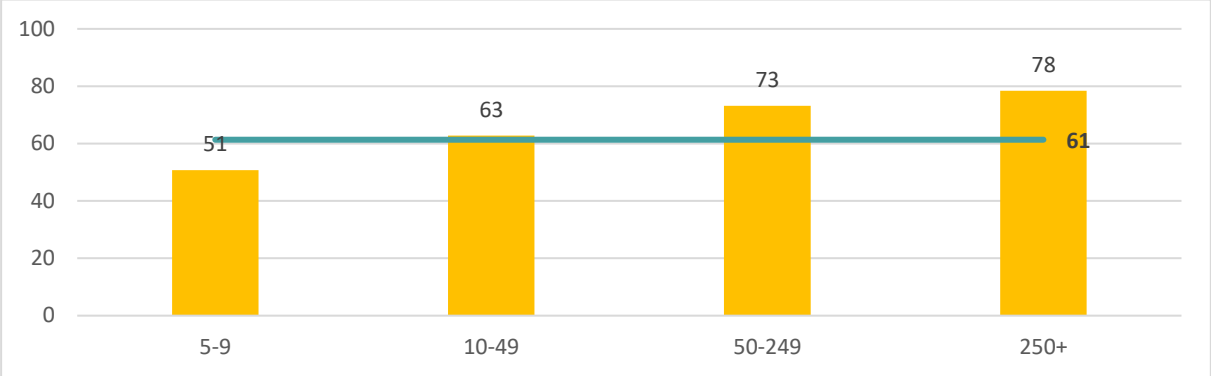
Figure 183: Percentage of HeSCare sector establishments that indicate that health and safety is regularly discussed between employee representatives and the management, by subsector, EU-27, 2019 (%)



Source: Panteia based on ESENER-2019
Base: Only HeSCare sector establishments with a works council, a trade union,a health and safety committee or another type of health and safety representative, EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

Data by establishment size show that the share of HeSCare establishments which can be characterised by regular discussions on OSH issues between employee representatives and the management increases with the number of employees. Around 78% of establishments with 250 or more employees indicate that health and safety issues are regularly discussed by employee representatives and the management, whereas the share is 73% for establishments with 50 to 249 employees, 63% for those with 10 to 49 employees and 51% for those with 5 to 9 (Figure 184).

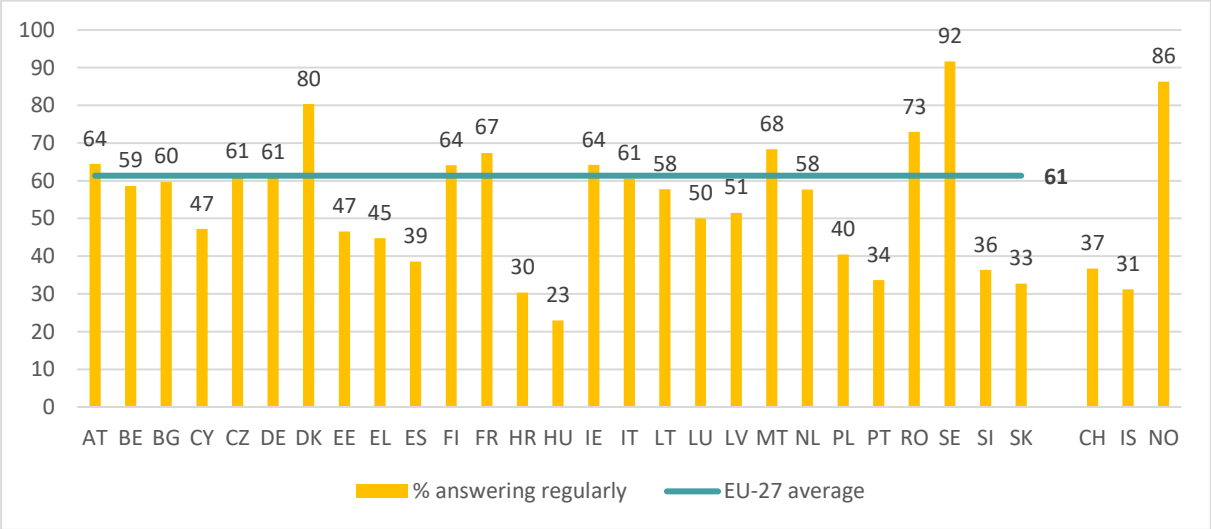
Figure 184: Percentage of HeSCare sector establishments that indicate that health and safety is regularly discussed between employee representatives and the management, by size, EU-27, 2019 (%)



Source: Panteia based on ESENER-2019
Base: Only HeSCare sector establishments with a works council, a trade union, a health and safety committee or another type of health and safety representative, EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

Data by country show significant differences (Figure 185). In the EU-27, Sweden (92%) and Denmark (80%) are the countries with a greater presence of HeSCare sector establishments that indicate that health and safety is regularly discussed between employee representatives and the management. Contrary to this, Hungary (23%) and Croatia (30%) show the lowest shares of establishments with these characteristics.

Figure 185: Percentage of HeSCare sector establishments that indicate that health and safety is regularly discussed between employee representatives and the management, by country, EU-27 (+ CH, IS and NO), 2019 (%)



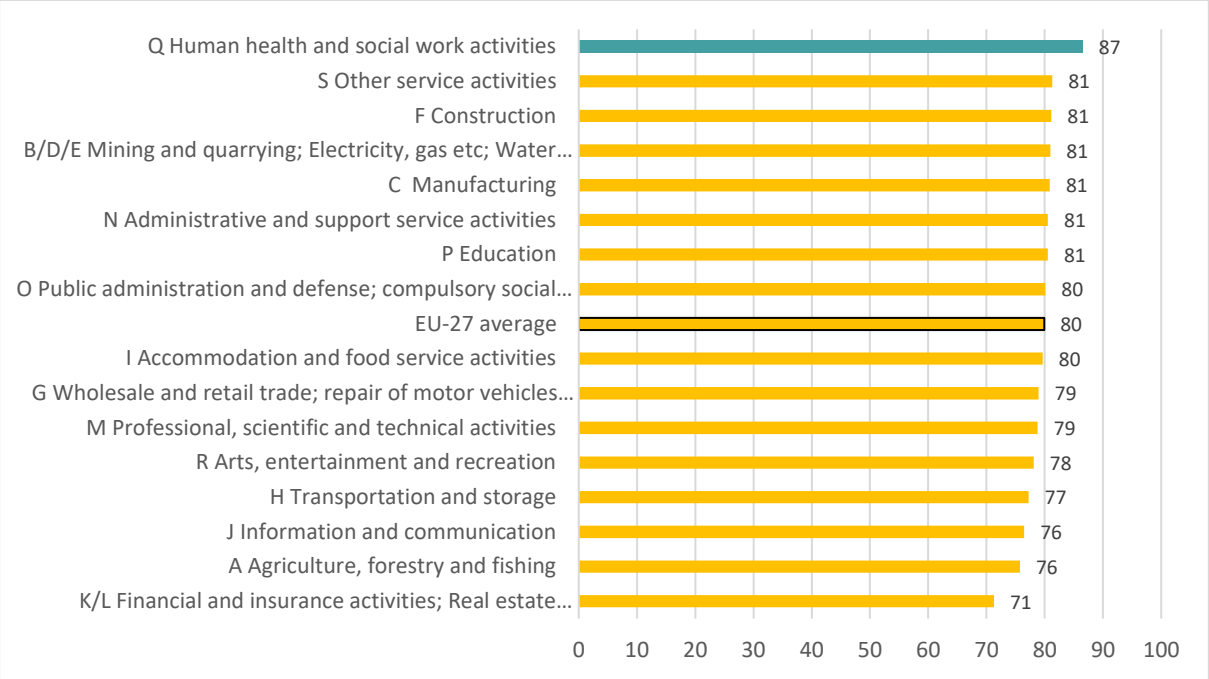
Source: Panteia based on ESENER-19
Base: Only HeSCare sector establishments with a works council, a trade union, a health and safety committee or another type of health and safety representative in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

6.2.2 Employee involvement in the design and implementation of OSH related measures

The ESENER-19 survey provides information on the involvement of HeSCare employees in the design and implementation of different OSH related measures, following a risk assessment. Data available show that in a large majority of HeSCare establishments (87%), employees are usually involved in the design and implementation of measures related to health and safety (Figure 186). **This share is the**

highest share among all economic sectors in the EU-27, and thus above the EU-27 average across all sectors (80%). In this case, the lowest percentage of establishments corresponds to Financial and Insurance activities; real estate activities (71%).

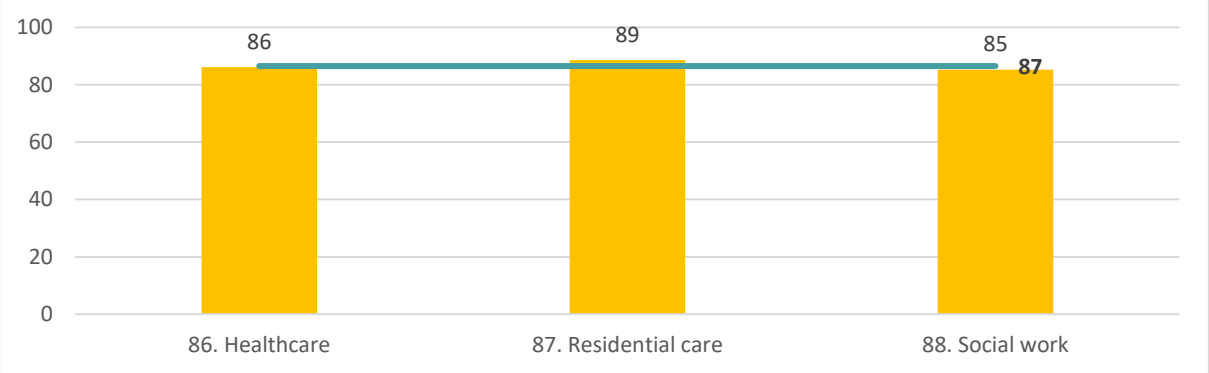
Figure 186: Percentage of establishments where employees are usually involved in the design and implementation of OSH related measures following a risk assessment, by sector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: Responses only of those establishments that regularly carry out workplace risk assessments in the EU-27.

The smallest establishments (those with 5 to 9 employees) show the highest share (90%) where employees are usually involved in the design and implementation of OSH related measures. This percentage decreases as size increases (85% among establishments with 10 to 49 employees, and 83% among establishments with 50 employees or more). Meanwhile, by subsector, the proportion of residential care establishments (89%) where employees are usually involved in the design and implementation of OSH related measures is slightly higher than those of healthcare establishments (86%) and social work establishments (85%) (Figure 187).

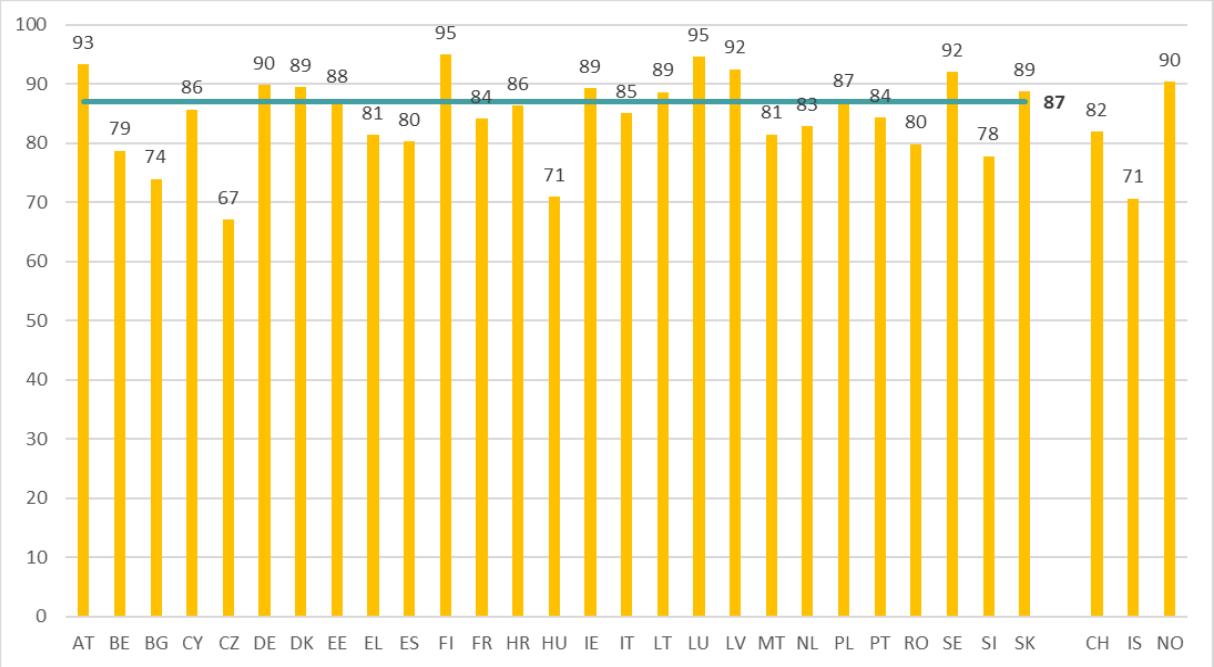
Figure 187: Percentage of HeSCare sector establishments where employees are usually involved in the design and implementation of OSH related measures following a risk assessment, by subsector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: Responses only of those HeSCare sector establishments that regularly carry out workplace risk assessments in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

Looking at data per country, the countries with a higher percentage of HeSCare sector establishments where employees are usually involved in the design and implementation of OSH related measures are Finland (95%), Luxembourg (95%) and Austria (93%) (Figure 188). In contrast, the countries at the bottom of the list are the Czech Republic (67%) and Hungary (71%).

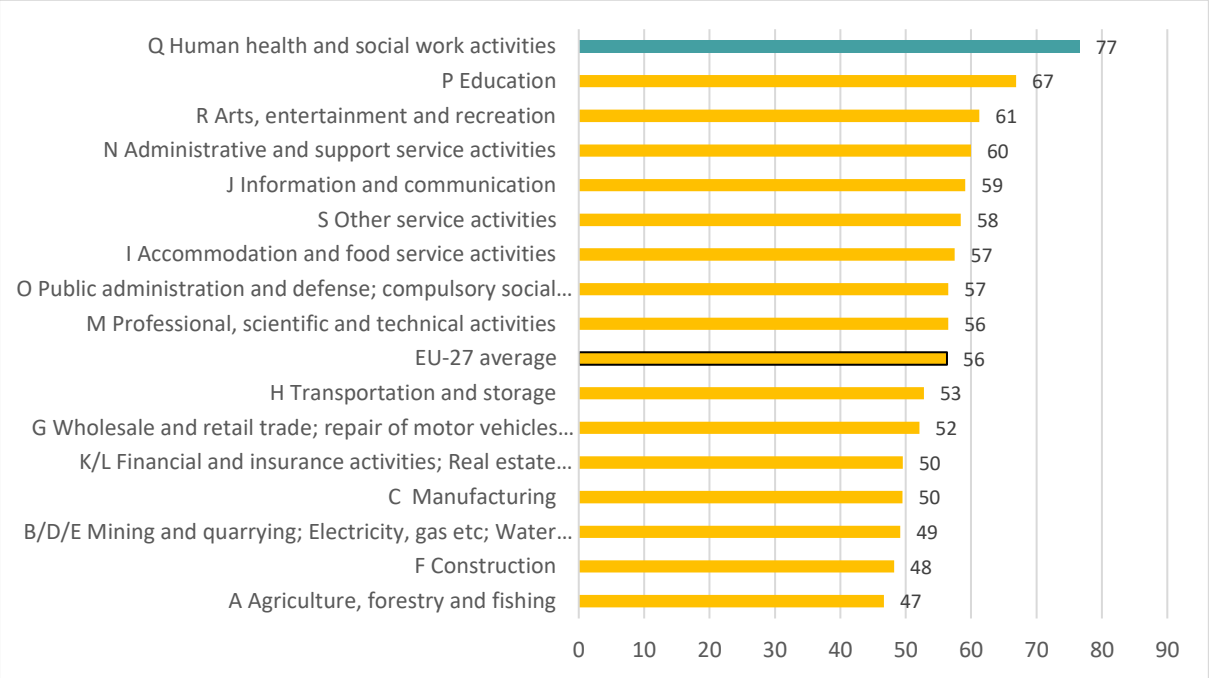
Figure 188: Percentage of HeSCare sector establishments where employees are usually involved in the design and implementation of OSH related measures following a risk assessment, by country, EU-27 (+ CH, IS and NO), 2019 (%)



Source: Panteia based on ESENER-19
Base: All HeSCare sector establishments in the EU-27, Switzerland, Iceland and Norway.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

ESENER-19 also provides data on establishments where employees participate in the design and set-up of measures to address psychosocial risks (only among those that have introduced such measures). **77% of establishments in the HeSCare sector indicate that their employees have a role in the design and set-up of such measures, which is the highest percentage in the EU-27**, compared with all economic sectors (Figure 189). In fact, only in 56% of EU-27 establishments (average for the whole economy) have employees with this role. Education is the sector with the second highest share (67%), whereas the lowest share among all sectors corresponds to the Agriculture, forestry, and fishing sector (47%).

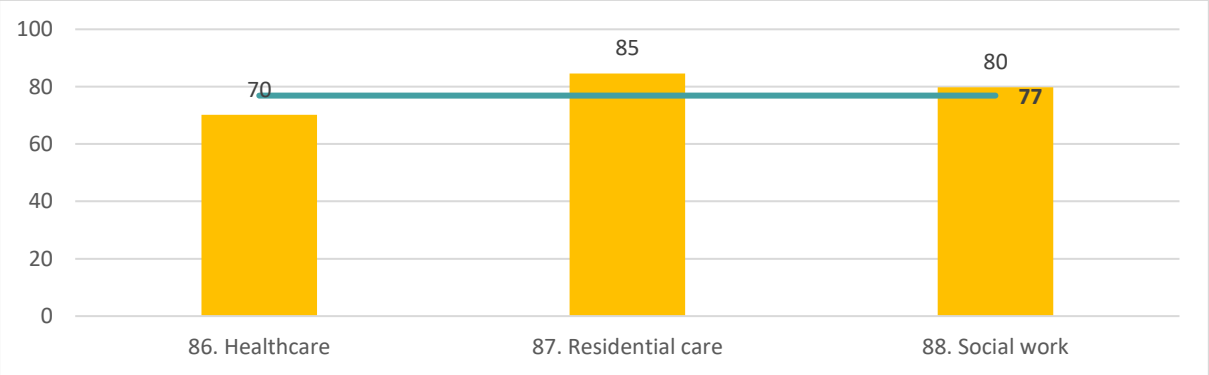
Figure 189: Percentage of establishments where employees have a role in the design and set-up of measures to address psychosocial risks, by sector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: All establishments in the EU-27.

Analysing the HeSCare sector by subsector, 85% of establishments in residential care activities indicate that employees have a role in the design and set-up of measures to address psychosocial risks (Figure 190). This is the highest share among the three subsectors. In social work activities, 80% of establishments confirm this role for their employees, while it is less extended among healthcare establishments (70%).

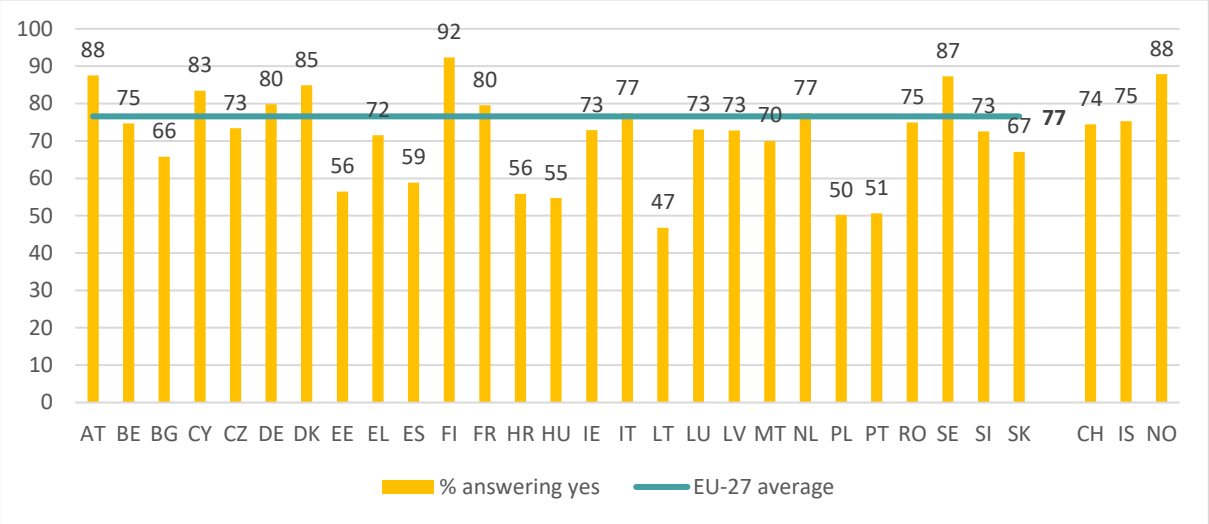
Figure 190: Percentage of HeSCare sector establishments where employees have a role in the design and set-up of measures to address psychosocial risks, by subsector, EU-27, 2019 (%)



Source: Panteia based on ESENER-19
Base: Responses only of those HeSCare sector establishments that have introduced different measures to prevent psychosocial risks, EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

No significant differences are noted by establishment size. Finally, this information is also analysed per country for the HeSCare sector, as shown in Figure 191. In the EU-27, Finland is the country with a largest share of establishments where employees participate in the design and set-up of measures to address psychological risks (92%), followed by Austria (88%). On the contrary, Lithuania (47%) and Poland (50%) are the two EU-27 countries where it is less habitual that employees have such a role.

Figure 191: Percentage of HeSCare sector establishments where employees have a role in the design and set-up of measures to address psychosocial risks, by country, EU-27 (+ CH, IS and NO), 2019 (%)



Source: Panteia based on ESENER-19
Base: Responses only of those HeSCare sector establishments that have introduced different measures to prevent psychosocial risks. EU-27, Switzerland, Iceland and Norway.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

To conclude, a recent report published by EU-OSHA (2022), based on the above-mentioned ESENER questions, identified three types of establishments in terms of workers' involvement in OSH (low level of worker involvement, medium level of worker involvement, and high level of worker involvement), as described in box 14 below.

Box 14: Establishment typology on worker involvement in OSH

Latent class analysis (LCA) was run on the 2019 ESENER. The LCA results showed that there are three types of establishments in terms of workers' involvement in OSH, as follows:

a. Establishments with relatively low level of worker involvement: 47% of all establishments.

b. Establishments with medium level of worker involvement: 8% of all establishments.

c. Establishments with high level of worker involvement: 46% of all establishments.

	Class 1 - Relatively low level of worker involvement	Class 2 - Medium level of worker involvement	Class 3 - High level of worker involvement
If measures have to be taken following a risk assessment, employees are involved in their design and implementation	72%	79%	88%
Establishment has a health and safety representative (as a form of employee representation)	29%	88%	82%
Health and safety is discussed between employee representatives and the management - occasionally (class 1 & 2) - regularly (class 3)	37%	95%	88%
Health and safety representatives are provided with any training during work time to help them perform their health and safety duties	63%	84%	92%
Health and safety issues are discussed in staff or team meetings - occasionally (class 1 & 2) - regularly (class 3)	54%	96%	75%
Employees have been involved in identifying possible causes for work-related stress/ employee survey including questions on work-related stress has been conducted in your establishment in the last 3 years	35%	61%	66%
Employees have a role in the design and setup of measures to address psychosocial risks	45%	60%	75%
Class size	47%	8%	46%

In relative terms, HeSCare sector establishments, compared with establishments in all other sectors, are **most likely to have a high level of worker involvement in OSH management**, followed by a medium level, and they are least likely to have a low level of worker involvement. Moreover, public sector establishments, compared with private sector establishments, are more likely to have a medium level of worker involvement than to have a low level of worker involvement. Concerning company size, large and medium-sized companies are most likely to have a high level of worker involvement than small companies. Micro companies are most likely to be in class 1, and thus are more likely than small companies to have a low level of worker involvement.

Source: European Agency for Safety and Health at work, 2022a

7. Economic costs and burdens

OSH management is important to all economic sectors, but it holds particular significance in the HeSCare sector, where the well-being of both employees and the individuals under their care is at stake. Poor OSH management in the HeSCare sector not only jeopardises the health and safety of its workers but also carries significant economic costs and burdens for organisations. Poor OSH management often leads to an increase in workplace injuries and illnesses among HeSCare workers. This results in direct financial costs, with the most common being related to sickness absenteeism, health care, individual productivity losses or presenteeism, personnel turn-over, insurance and pension costs and indirect cost effects, such as hiring replacement, paying for overtime, subcontractor work, etc. The cost reducing effects of OSH are well documented. Presenteeism, where employees work while unwell, can reduce overall productivity and compromise the quality of care provided. Constant exposure to unsafe working conditions also contributes to burnout and dissatisfaction among HeSCare sector workers, leading to high turnover rates. Recruiting and training replacements incur additional costs for organisations (EU-OSHA, 2012b). Well planned and systematically carried out OSH measures deliver economic returns, which appears to be the case even if there are difficulties in estimating the exact positive productivity effects of work (EU-OSHA, 2012b).

Although comparable data at EU level on the costs and burdens of poor OSH are not available, some data sources provide some insights regarding the potential impact of poor OSH on the HeSCare sector workforce, which will have an effect on costs for organisations. This section looks at the impact of absenteeism and presenteeism in the European HeSCare sector, as well as the impact of accidents on days lost.

7.1 Absenteeism and presenteeism

Absenteeism and presenteeism, two distinct but interconnected phenomena, have significant economic implications for the EU. Both absenteeism as well as presenteeism are not health issues, but consequences coming from health issues. Absenteeism, as well as presenteeism, lead to productivity loss and substantial costs for HeSCare organisations. The economic consequences of absenteeism and presenteeism extend beyond individual businesses to impact the broader EU economy. Reduced productivity, higher healthcare costs, and strains on social security systems are just a few of the macroeconomic challenges associated with an unhealthy and unproductive workforce.

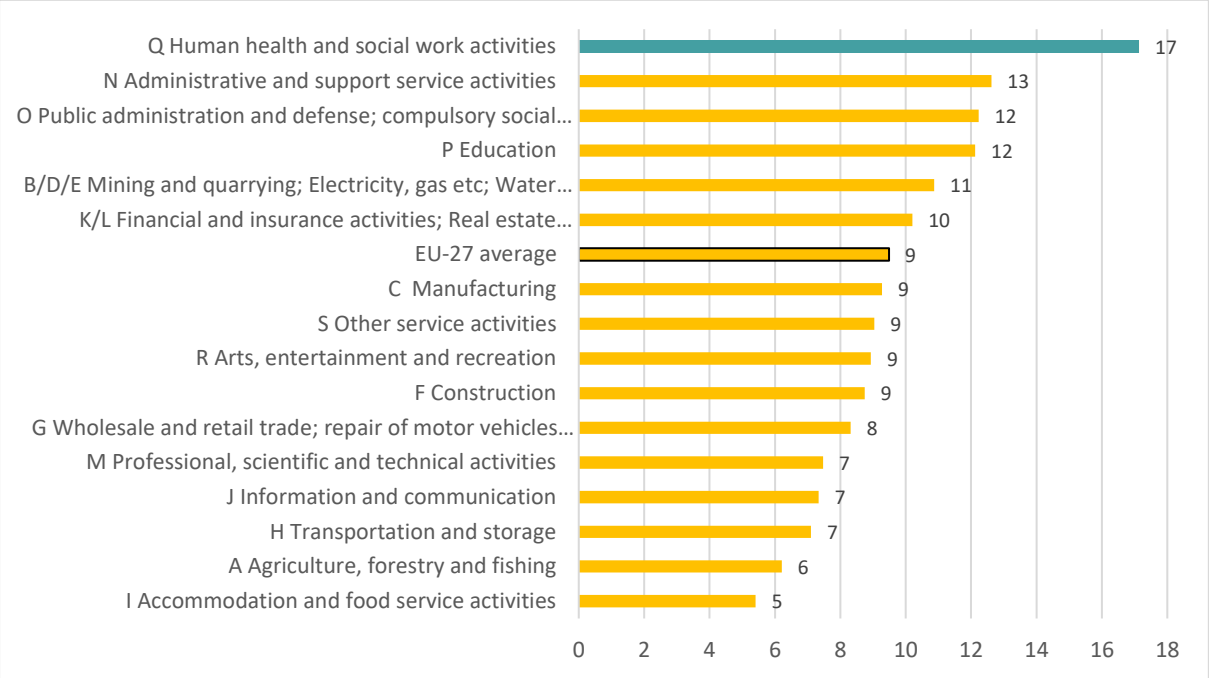
In the HeSCare sector, where staffing shortages are already a concern, absenteeism can have severe implications for the delivery of essential services. The direct costs of absenteeism include salary payments for absent workers, costs of temporary replacements, and expenses associated with healthcare benefits. Indirect costs, such as decreased productivity, delayed project timelines, and strains on workplace morale, further amplify the economic impact of absenteeism. Health-related absenteeism, often linked to physical or mental health issues, is a major contributor to these costs. Chronic conditions, workplace stress, and inadequate work-life balance can lead to increased sick leave, exacerbating the economic strain on businesses and the EU economy as a whole.

7.1.1 Absenteeism

Absenteeism is a prevalent and expanding global issue but is particularly prominent in hospital environments characterised by rapid-paced operations, shift work and occupational demands (Garcia de Paiva et al. 2021). The occurrence of absenteeism in hospitals can be linked to suboptimal working conditions and the significant emotional toll arising from daily encounters with illness and mortality. These circumstances frequently result in instances of sickness-related absences. It represents a widespread and escalating global challenge, impacting productivity, service quality, and placing an additional burden on the workloads of fellow employees (Garcia de Paiva et al. 2021). The repercussions of absenteeism encompass heightened costs, service disruptions, diminished productivity, and various economic consequences leading to increased expenditures (Garcia de Paiva et al. 2021).

ESENER-19 data show that in 2019 compared to other sectors, a higher number of HeSCare establishments indicate absence due to sickness has increased over the past 3 years (Figure 192).

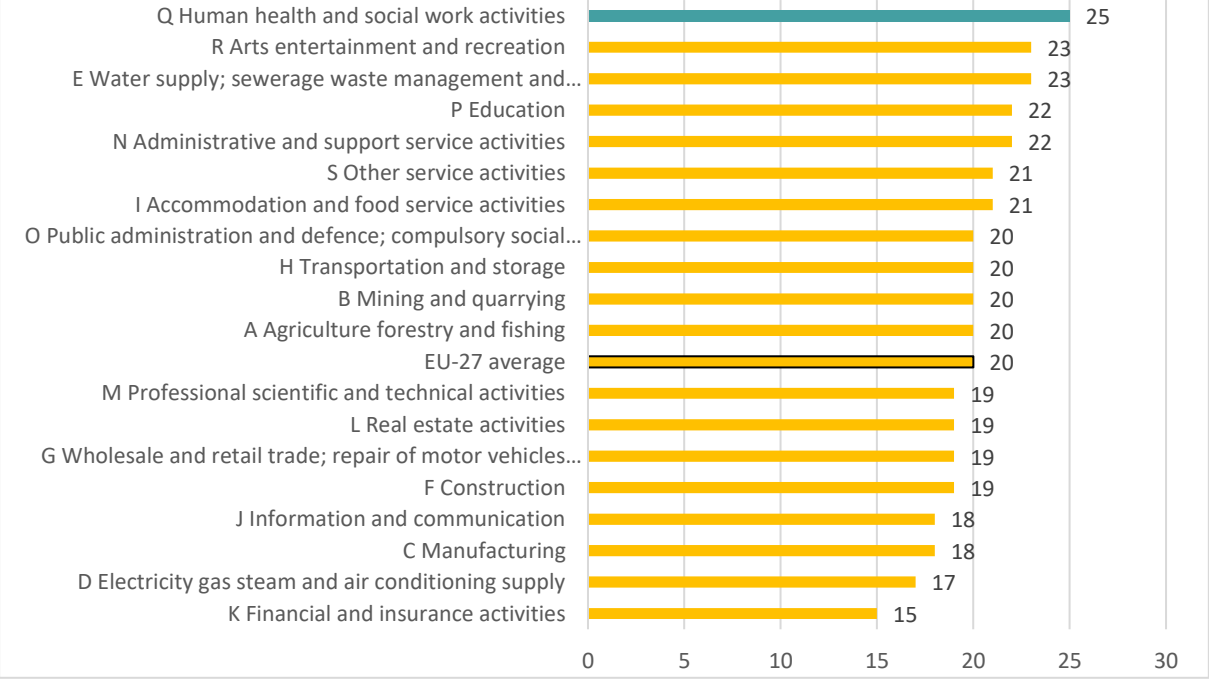
Figure 192: Establishments indicating absence due to sickness has increased over the past 3 years, by sector, EU-27, 2019 (% indicating yes)



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

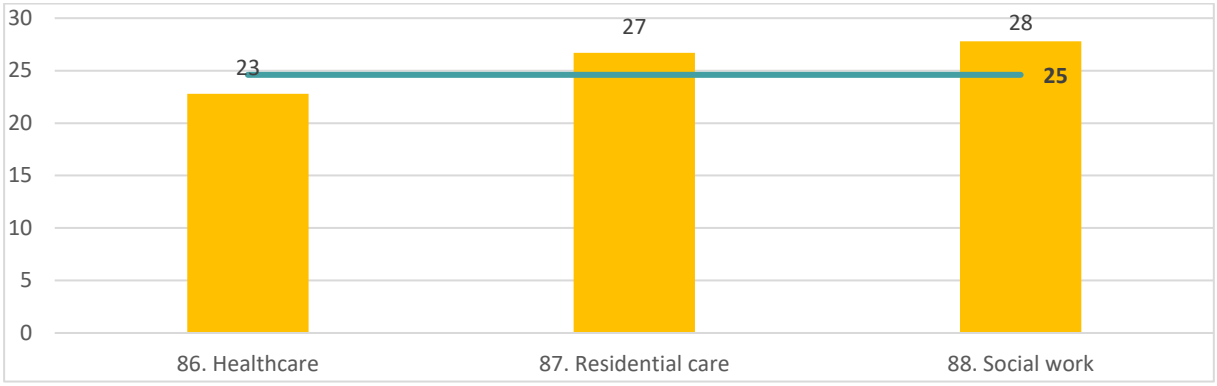
EWCTS data show that in 2021 **the HeSCare sector had the highest share of workers with an illness or health problem which has lasted, or is expected to last, for more than 6 months** (Figure 193). This high share is seen in all three subsectors, as is evident from Figure 194.

Figure 193: Percentage of workers with an illness or health problem which has lasted, or is expected to last, for more than 6 months, by sector, EU-27, 2021 (% indicating yes)



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

Figure 194: Percentage of HeSCare sector workers with an illness or health problem which has lasted, or is expected, to last for more than 6 months, by subsector, EU-27, 2021 (% indicating yes)



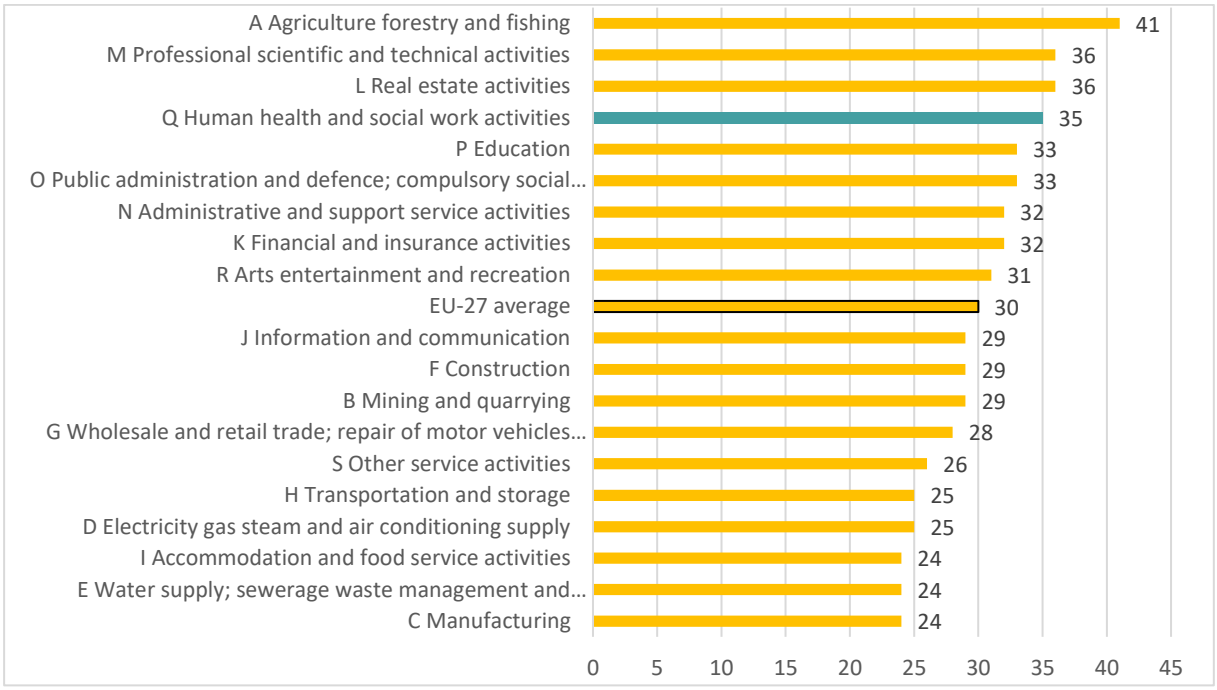
Source: TNO based on the EWCTS-2021
Base: All HeSCare workers in the EU-27.
The horizontal line indicates the HeSCare (NACE Q) EU-27 average.

7.1.2 Presenteeism

Presenteeism is defined as the practice of being present at work while unwell and constitutes a notable contributor to diminished productivity for employers, particularly within the healthcare subsector (Challener et al. 2020; Ruhle et al, 2020). Studies exploring the connection between presenteeism, and chronic health conditions reveal that its costs far surpass those associated with absenteeism (Challener et al. 2020). Within the healthcare domain, presenteeism has been linked to unfavourable outcomes in patient safety and the quality of care. Moreover, "infectious presenteeism" is used to describe the phenomenon of employees attending work despite being afflicted with an infectious disease. Numerous instances exist in which the presence of healthcare providers at work while unwell has led to the transmission of infections to patients (Challener et al. 2020). Mental health issues, a growing concern in workplaces across the EU, also contribute to presenteeism. Employees experiencing stress, anxiety, or burnout may feel compelled to continue working, despite diminished productivity. Addressing mental health-related presenteeism is crucial for maintaining a healthy and resilient workforce.

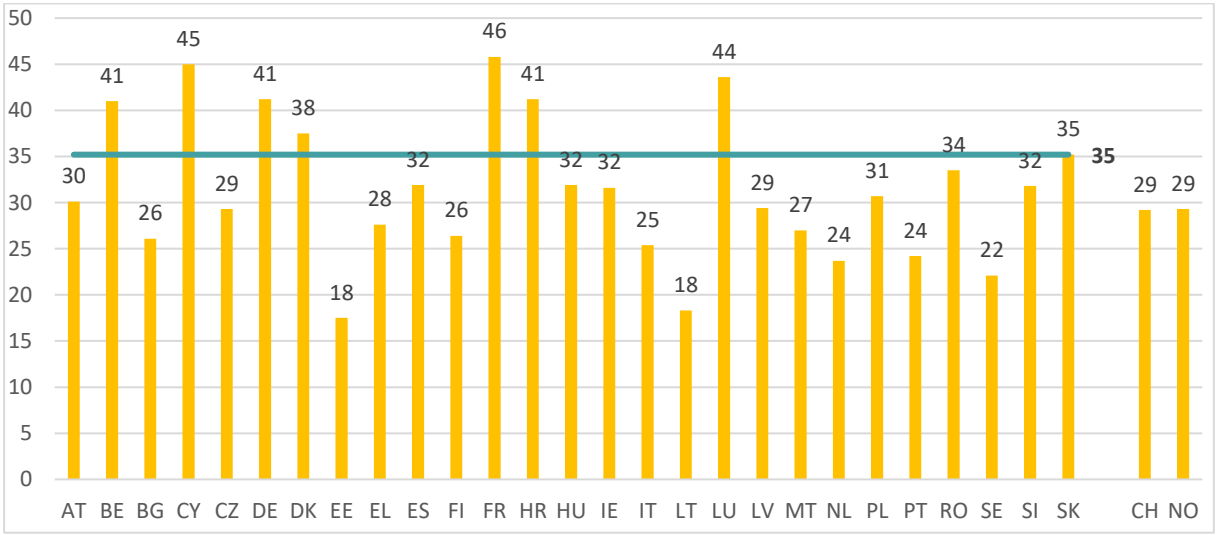
There is increasing awareness of the costs of presenteeism; not least, it is associated with lower productivity and with risks for workers and organisations alike (Kinman, 2019). According to data from the 2021 EWCTS, the share of workers in the HeSCare sector reporting working whilst sick over the past 12 months is higher than the EU-27 average across all sectors (Figure 195). Differences regarding presenteeism are quite large throughout the EU-27. For example, the level of presenteeism in France is more than 2.5 times higher than presenteeism levels in Estonia and Lithuania (Figure 196).

Figure 195: Percentage of workers reporting working sick over past 12 months, by sector, EU-27, 2021 (% indicating yes)



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

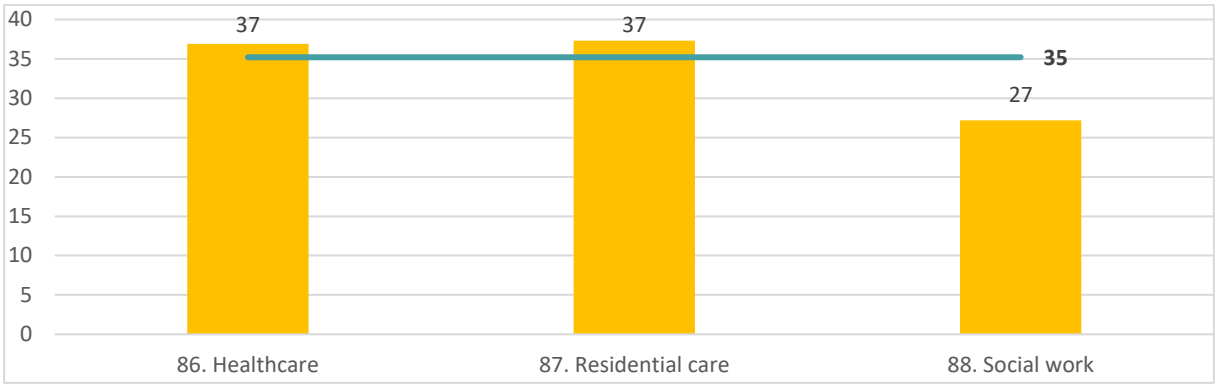
Figure 196: Percentage of HeSCare sector workers reporting working sick over past 12 months, by country, EU-27 (+ CH and NO), 2021 (% indicating yes)



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

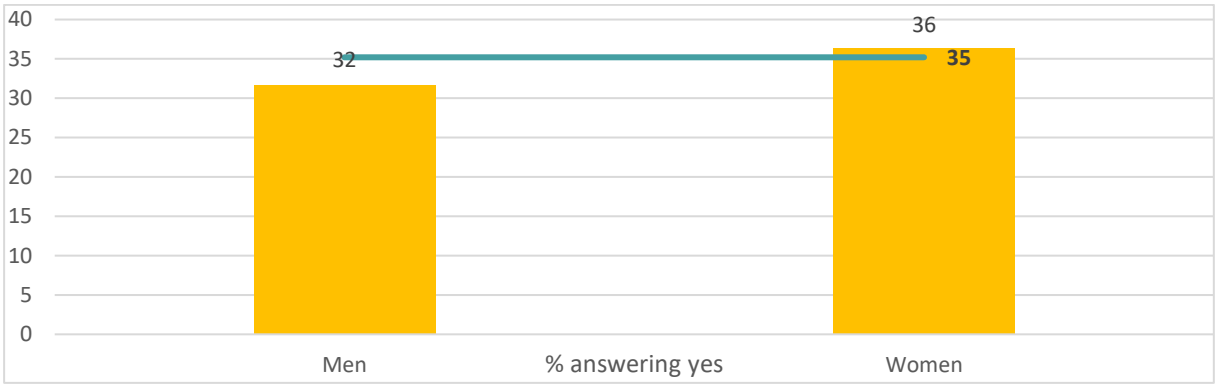
When looking at differences between the three subsectors regarding presenteeism, it is seen that **in the social work subsector the level of presenteeism is lower compared to that of the healthcare subsector as well as the residential care subsector** (as can be seen in Figure 197). Regarding gender, a slightly larger share of female workers reports presenteeism in comparison with their male counterparts (Figure 198).

Figure 197: Percentage of HeSCare sector workers reporting working sick over past 12 months, by subsector, EU-27, 2021 (% indicating yes)



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

Figure 198: Percentage of HeSCare sector workers reporting working sick over past 12 months, by gender, EU-27, 2021 (% indicating yes)



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

7.2 Accidents at work

Accidents at work pose significant economic costs and burdens across sectors in the EU, with the consequences extending beyond the immediate impact on individuals, to also affecting productivity, healthcare systems and social welfare. The direct economic costs of accidents at work in the EU are substantial. These include medical expenses, compensation pay-outs and costs associated with rehabilitation and disability support for injured workers. The burden on national healthcare systems is evident, as governments allocate resources to treat and care for individuals who have suffered work-related injuries. These direct costs place a strain on public budgets and can hinder economic development.

Forming an actual estimation of the societal costs of the work-related accidents is a complicated task (EU-OSHA, 2019b). Nevertheless, it is certain that poor OSH management resulting in a large number of occupational injuries and illness generates high costs for all – workers, companies and the whole economy (EU-OSHA, 2019b). According to the estimation presented at the XXI World Congress on Safety and Health at Work in Singapore in September 2017, the EU (EU-28) loses at least EUR 476 billion per year, due to the costs of the work-related accidents and illnesses (EU-OSHA, 2017b). The societal and economic costs of such accidents amount up to 3.3% of the EU's GDP (EU-OSHA, 2019b). When it comes to the burden placed on individual Member States, it varies significantly between Western and non-Western countries, which is the result of the industrial mix, legislative context and preventive incentives (EU-OSHA, 2019b). For example, the bottom-up estimation provided by EU-

OSHA in 2019 shows that for the Netherlands the total costs of work-related accidents and illnesses was EUR 18,605 million which amounted to 2.7% GDP while in Poland the costs went up to EUR 21,470 million amounting to 5% GDP (EU-OSHA, 2019b). Workplace accidents and illnesses generate different types of costs including direct costs (healthcare), productivity and output cost, as well as costs relating to the impact of the accident on illness on the worker's life (EU-OSHA, 2019b). Therefore, investing in preventive measures to reduce workplace accidents can yield significant economic benefits. The implementation of robust OSH practices, employee training programs, and the use of advanced safety technologies can help mitigate the economic costs associated with accidents at work. A safer working environment not only protects workers but also contributes to increased productivity, reduced absenteeism and enhanced overall workplace morale.

In the HeSCare sector, accidents which result in 4 or more days lost have been steadily increasing since 2011, as can be seen in Table 26. 2020 saw a large spike in accidents in the HeSCare sector, although this increase is mostly due to COVID-19 infections. For all NACE activities, there was a reduction in accidents in the workplace. An important factor leading to this is the reduction in economic activities during the COVID-19 period. Due to social distancing and lockdowns, levels of production decreased in 2020 which could have resulted in a reduction of the number of occupational injuries and diseases (Baek et al. 2021). Changes in work methods may also have affected workplace accidents as many people were forced to reduce working hours and work from home which resulted in less time spent in the workplace and less interaction with other workers and customers, which is likely to reduce injuries and diseases in the workplace. However, as can be seen, workers in the HeSCare sector became more vulnerable to occupational injuries and diseases (Baek et al. 2021).

Table 26: Number of accidents at work by days lost (4 days and over) in relation to all the sectors and the HeSCare sector and subsectors, EU-27, 2011-2021

Year	Total - all NACE activities	HeSCare sector	Healthcare	Residential care	Social work
2011	3,169,243	276,743	113,661	89,880	73,201
2012	2,937,737	263,722	108,491	86,090	69,141
2013	2,936,708	279,666	113,913	94,013	71,740
2014	3,031,648	326,839	150,915	98,563	77,362
2015	3,030,077	329,346	153,730	98,223	77,394
2016	3,112,736	338,971	154,127	102,928	81,916
2017	3,116,691	336,233	137,441	110,377	88,414
2018	3,124,828	338,716	137,215	109,027	92,474
2019	3,140,950	344,617	140,242	109,856	94,520
2020	2,735,566	401,788	192,890	119,872	89,025

Source: Panteia, based on European Statistics on Accidents at Work (ESAW), 2023

Data from ESAW also show that the number of accidents at work by days lost (permanent incapacity or 183 days or over) has been increasing steadily since 2011 (Table 27). The biggest increase can be attributed to the healthcare subsector, and the economic costs of staff being permanently off work in the healthcare subsector can be significant and can have various implications for both the healthcare institutions and the broader economy. The LFS also includes data on persons reporting an accident at work resulting in time off work (Figure 92).

Table 27: Number of accidents at work by days lost (permanent incapacity or 183 days or over) in relation to all the sectors and the HeSCare sector and subsectors, EU-27, 2011-2021

Year	Total - all NACE activities	HeSCare sector	Healthcare	Residential care	Social work
2011	116,651	10,497	3,481	3,695	3,321
2012	108,126	9,616	3,509	3,167	2,939
2013	103,997	10,315	4,309	3,192	2,814
2014	107,924	13,468	7,082	3,742	2,644
2015	113,735	13,109	6,787	3,263	3,058
2016	113,062	12,908	6,509	3,441	2,958
2017	131,512	13,049	5,501	3,978	3,570
2018	135,583	15,190	6,451	4,509	4,230
2019	139,482	16,180	6,791	4,770	4,619
2020	117,700	14,906	6,511	4,355	4,039

Source: Panteia, based on European Statistics on Accidents at Work (ESAW), 2023

8. Conclusions and policy pointers

8.1 Main conclusions from the research

- **Characterisation of the HeSCare sector**

The HeSCare sector plays a **significant role in European society**, in terms of overall health and wellbeing as well as for the economy in general. The HeSCare sector is an important job generator in the EU economy. According to Eurostat LFS statistics **around 21.5 million people were employed in the HeSCare sector (NACE Q) in 2022.** Most of these employees work in the healthcare subsector, with around 12.5 million employees. The HeSCare sector encompasses **diverse occupations, and includes an array of professionals**, from nursing and caring roles to dentists, pharmacists, physiotherapists and various health, hygiene and therapy specialists. It encompasses also a substantial share of office workers, managers, clerks, receptionist, cleaners, etc. without which the sector(s) would not function.

HeSCare sector workers have diverse occupational profiles, which require diverse educational and qualification levels, with many possessing intermediate or advanced education, and often possessing higher skill levels compared with the EU average; however skill mismatches can lead to inefficiencies or safety concerns in care delivery. Despite the higher skill levels in the sector, there is a perceived lack of job prospects for career advancement, especially among workers in the social work subsector.

Workers in the HeSCare sector consider that they receive low payment relative to achievements, and often **work long hours without proportional compensation**, with large differences across Member States. Most HeSCare workers hold a permanent contract. However, due to the cost and efficiency policies in the HeSCare sector, non-standard forms of employment contract have become more prevalent. Part-time employees, predominantly women in personal care roles, face a higher risk of underpayment, along with struggles with work-life balance. Non-standard employment contracts are increasingly prevalent in the sector, as is undeclared work, part-time contracts and zero-hour contracts. Part-time employment is prevalent, particularly in residential care and among women, driven by factors such as health concerns, job availability or caregiving responsibilities. **Undeclared work is particularly prevalent in home-care based activities**, resulting in restricted access to benefits and reduced future pensions, impacting workers' conditions and safety. HeSCare workers in eastern European Member States are the most likely to work multiple jobs.

The presence of workers with precarious employment conditions is notably higher in the HeSCare sector compared to the EU-27 average across all sectors, and is particularly high in the social work and residential care subsectors. The share of workers with precarious employment conditions in the HeSCare sector differs significantly between Member States. **Employees in HeSCare experience a higher intensity of work** compared to the EU average, particularly in healthcare, a situation which was further exacerbated by the COVID-19 pandemic. Workers in the HeSCare sector also encounter challenges in maintaining a **satisfactory work-life balance**. The share of HeSCare employees reporting problems with fitting their working hours in with family and social commitments outside work differs between the different Member States. HeSCare workers score slightly lower on the WHO Well-Being Index when compared to the EU-27 average across all sectors, and is among the four sectors with the lowest levels of wellbeing.

Women make up a significant majority of the HeSCare sector workforce, something which is apparent in all subsectors, yet they often face undervaluation and insufficient recognition, especially when they have lower education levels or are migrants. Women in caregiving roles encounter elevated workplace risks like harassment and discrimination, and their involvement in informal caregiving persists, impacting their financial stability and work-life balance. Gender-based social roles and stereotypes contribute to these unequal distributions, affecting women's physical and mental health. These responsibilities often lead to reduced working hours, absenteeism and slower career growth. The pandemic exacerbated gender-specific effects in the HeSCare sector, facing higher risks of infection, work-related stress and burnout due to extended hours and heightened exposure, and recovery policies often failed to address their specific needs.

Demographic changes, particularly the **ageing population**, pose significant challenges, leading to potential workforce shortages in the sector. The rise in older individuals needing care due to age-related health issues, combined with declining birth rates and an ageing workforce, creates an imbalance in the supply and demand for care workers. There is an evident increase in older workers in the HeSCare sector, especially in professions like nursing, which may impact future workforce availability. There is a high variance in age distribution in the HeSCare sector between the EU-27 Member States, with 51% of the HeSCare sector workforce in Lithuania aged above 50, compared with only 24% in Cyprus. The increasing age of the sector's workforce is a noteworthy issue in all Member States.

Precarious employment conditions differ across age groups, with younger workers less often in full-time employment or with permanent contracts. Young workers employed on temporary contracts have less access to training and to participation in long-term competence development than workers with permanent contracts. Young workers also face more risks due to inexperience Effective workplace design offers advantages to employees of all age brackets, including older workers. Challenges like the dwindling number of young recruits and the need for caregiving may exacerbate staff shortages.

There has been **a consistent rise in migrant healthcare professionals over the last three decades**. Predominantly female, these workers often leave their families for better opportunities abroad due to dissatisfaction with home-country working conditions.

- **Main working conditions and work-related health risks in the HeSCare sector**

HeSCare sector workers are exposed to a wide range of health-related risks during their work, with both **MSK and psychosocial risks seen as the main risks**. Being exposed to MSK risks is itself a risk factor for stress; MSDs can contribute to stress and mental overload and vice versa. This interaction is particularly relevant for the HeSCare sector, given the high prevalence of both MSK and psychosocial risks.

In comparison with other sectors, workers in the HeSCare sector are more often exposed to MSK risks and PSRs, something which is confirmed by a number of different data sources. MSK risks in the HeSCare sector include lifting patients, pushing heavy equipment and other objects, working in awkward positions, and performing repetitive movements and work involving prolonged standing and sitting. **Over the past years, the sector has seen a significant increase in the number of establishments reporting repetitive hand or arm movements as a risk, as well as lifting or moving people or heavy loads**. Healthcare workers as well as residential care workers are more often exposed to MSK risks in comparison with workers in the social work subsector.

Psychosocial risk factors encompass a range of challenges, including incidents of violence and harassment, exposure to traumatic events, heavy workloads, providing care to individuals at the end of their lives, the necessity for multitasking, working shifts, solitary work, experiencing burnout, instances of mobbing or bullying and a lack of control over one's work**. The most reported psychosocial risks within the HeSCare sector are severe time pressure and the risk of dealing with difficult customers or patients**. Healthcare workers as well as residential care workers report higher levels of exposure to severe time pressure, in comparison with workers in the social work subsector. **Time pressure has also become more common in the HeSCare sector** over the past years and is also more common in the HeSCare sector than in many other sectors. Compared with other sectors, workers in the HeSCare sector report the highest exposure to dealing with difficult customers, patients and pupils that can adversely affect mental well-being.

The **workload of HeSCare sector workers is generally high and increasing** due to the growing needs of an ageing population and a global shortage of health and social care professionals. One of the most common psychosocial risks is high workload and time pressure.

HeSCare work can usually be characterised as **emotionally demanding**, with workers in the sector reporting the highest prevalence of any type of intimidation (such as verbal abuse, bullying and sexual harassment). HeSCare workers also reported the **highest prevalence of discrimination** compared with all sectors.

Workers within the HeSCare have the **highest share of co-exposure to MSK and psychosocial risks** (although this is significantly less for those in the social work subsector, compared with healthcare and residential care).

HeSCare workers are less exposed to physical risks, including excessive levels of noise, risk of accidents with vehicles in the course of work as well as (increased) risks of slips, trips when compared to other sectors. Workers employed in the HeSCare sector, especially those who work in healthcare and residential care, are faced with various **chemical risks** during their everyday work as hazardous substances are used for a variety of reasons, including treating patients, laboratory work and cleaning. **Healthcare subsector establishments report the risk of chemical and biological substances** almost twice as much as establishments within the social work subsector. Workers in the HeSCare sector are more than three times **more likely to handle or be in direct contact with materials that can be infectious**, with healthcare workers as well as residential care workers being more often exposed to biological risks.

Organisational risks (related to work autonomy, social support, work schedules, etc) are reported more frequently in establishments within the HeSCare sector, compared to others. HeSCare sector workers score a **lower task autonomy** than the average EU worker (which is mostly the case in the healthcare subsector), something which has been proven to negatively influence the well-being of workers.

HeSCare sector workers are less likely to experience social support from colleagues, peers and managers than on average in the EU: this can mostly be attributed to lack of staffing. **Night work is most common among employees within the healthcare subsector** (employees are exposed twice as much to night work as are employees in the social work subsector), since patients often need increasingly more intensive care, during all hours, within a care facility. Additionally, w**orking on short notice is more common** in the HeSCare sector than in others. Compared with all other NACE sectors, a substantial smaller part of the workforce within the healthcare subsector experiences job insecurity, with the lowest level of exposure to job insecurity found in healthcare, which can possibly be explained by staff shortages in the sector.

Given that the HeSCare sector workforce is predominantly female, this has implications for OSH, with **women workers tending to be in poorer physical and mental health and reporting a higher prevalence of MSDs than men**. Furthermore, women workers report not only poorer self-perceived physical and mental health but also more limitations in their daily activities owing to health problems and higher levels of absence from work for health reasons.

- **Health outcomes in the HeSCare sector**

HeSCare sector workers exposure to MSK and psychosocial OSH-related risks lead to a series of health outcomes, which often differ due to the broad nature of the sector. Almost half of the workers in the HeSCare sector report their health or safety is at risk because of their work, with those in the healthcare subsector reporting the highest. MSDs and mental health problems are the most reported, which does not come as a surprise given the working conditions described earlier: MSK risks as well as PSRs are considered as the most common risks in the sector. **Workers in the HeSCare sector suffer from MSDs more often than the workers in any other sector**, in particular with back pain as well as muscular pains, in the upper limbs and the lower limbs.

Establishments in the HeSCare sector report **higher levels of work-related stress** when compared to other sectors in the economy, and it is highly reported across all three HeSCare subsectors. Compared to other sectors, the level of people reporting depression or anxiety is highest for the HeSCare sector. HeSCare workers are more likely to also experience **overall fatigue**.

The **number of fatal accidents in the HeSCare sector slightly increased in the period between 2011 and 2019**, whereas the total number of fatal accidents across the total economy decreased in this period. Occupational COVID-19 cases in 2020 were reported as accidents at work or cases of occupational disease, which explains the surge of fatal accidents, as well as the significant increase in the number of fatal accidents within the healthcare subsector. Non-fatal accidents in the HeSCare sector are reported more often than in other sectors. Most of the reported accidents in the HeSCare sector have a relatively low impact, with about 50% of the accidents leading to < 1 day off work and about 80% to < 2 weeks' time off.

- **OSH management practices in the HeSCare sector**

Risk assessments are regularly carried out in the HeSCare sector and are considered the most important instrument for ensuring safe and healthy work. There are notable differences across countries.

There are no real major differences between subsectors in the characteristics of these assessments, although establishments in the social work subsector are most likely to have risk assessments conducted by internal staff. Hospitals often have complex and dynamic work environments, with a diverse range of roles and a number of specific risks; conducting comprehensive risk assessments can therefore be challenging due to the diversity of activities and potential hazards and can require specialised external expertise. The most common reason reported by HeSCare sector establishments for not conducting risk assessments is that there are no major problems. There are significant differences across Member States in the shares of establishments that regularly carry out workplace risk assessments (from 98% in Latvia to only 48% in Luxembourg).

Establishments in the HeSCare sector are one of the **least likely sectors where risk assessments also cover workplaces at home**, as healthcare workers in particular, especially care providers, are most likely to be physically present in the workplace providing direct patient care.

Specific preventive measures are taken in the HeSCare sector to address OSH related risks (particularly MSDs), such as technical interventions (for example, lifts, standing hoists, height-adjustable beds and baths, sliding or transfer boards, wheelchair stair lifts and slings), organisational interventions (for example, reduction of time exposed to demanding working conditions, promoting healthy work-life balance, distribution of tasks, a well-designed work environment and a staff training programme), and person-oriented interventions (training programmes, information, education and the introduction of exercises). Preventive measures are less prevalent in the HeSCare sector in 2019 when compared to 2014: in particular with a reduction in the provision of equipment to help with lifting of moving. Due to the large share of elderly workers in the HeSCare workforce, addressing the ageing of the workforce is one of the aspects that needs to be considered in the context of risk assessments in this sector.

HeSCare establishments take a number of types of **measures to reduce or cope with psychosocial risks**, with the most frequently reported measures being allowing employees to take more decisions on how to do their job and confidential counselling. Establishments in the healthcare subsector are the least likely to take measures to reduce psychosocial risks. Establishments in 2019 were more likely to take preventive measures to address psychosocial risks when compared with 2014. Establishments in the social work and residential care subsectors are more likely to indicate that psychosocial risks are more difficult to deal with when compared with other risks.

Some of the **preventive measures** taken by establishments to deal with OSH-related risks are related to general **health promotion measures,** whereas other measures are specifically designed to cope with identified OSH-related risks. Measures for health promotion are more frequently found in HeSCare establishments compared with the rest of the economy (for example, exercise, addiction prevention and health nutrition).

HeSCare sector establishments are the most likely across the whole economy to provide employees with training for emergency procedures. Team leaders and line managers in healthcare and residential care are the most likely within the HeSCare sector to receive OSH training, with those in social work receiving this much less. Only 9% of establishments in the HeSCare sector provide training in different languages (which is the lowest across all sectors in the EU-27), however, this is mostly in relation to the fact that in the case of providing care to individuals, effective communication is fundamental for accurate diagnosis, treatment and overall patient care.

- **Main drivers and barriers for OSH management in the HeSCare sector**

Data from ESENER-2019 show that **fulfilling existing legal obligations and the importance of meeting the expectations of sector employees** are the most important reasons for establishments to implement OSH management practices, something also highlighted in the review of relevant literature. Therefore, legislation should be viewed more as an opportunity for improving OSH-related issues and upgrading the situation of both workers and patients than as a tool for sanctioning.

The percentage of **HeSCare sector establishments that have been visited by a labour inspector is lower than in other sectors**. Establishments in the residential care subsector are more likely to be visited by labour inspectorate services in comparison with the healthcare and social work subsectors, and the share of establishments visited by labour inspectorate services in the last 3 years differs significantly per Member State, ranging from 88% to 14%. Interviews and the literature show a

decreasing trend in the number of visits of labour inspectors to establishments in the HeSCare in comparison to other sectors, which is based on a decreasing number of labour inspectors, coupled with significant workload increases and the need for specialisation and training on specific risks. The fact that many labour inspectorates cannot conduct inspections and monitoring activities in private households employing carers (as many EU families do across the EU Member States) creates an additional difficulty for safeguarding the OSH and labour rights of these workers and exposes them to additional hazards and risks.

Those responsible for OSH in the HeSCare sector are **most likely to find the complexity of existing legal obligations**, followed by **lack of time and staff to deal with these issues and existing paperwork** as the **main reason for not engaging in OSH management practices**. Several interviewees felt that through social dialogue, with representatives of employees and employers working together, it is possible to reduce obstacles and increase the effectiveness of legal obligations. Enterprises in the HeSCare sector also report difficulties in addressing psychosocial risks, with the reluctance to talk openly about these risks and the lack of expertise and specialist support being the biggest reasons for not addressing these risks. The issue of the stigma attached to mental health is most likely the main reason behind this reluctance to talk openly on the issue. Open working cultures towards mental health issues, with trained line management and specialist support are the most important means to address the issues. However, the complexity and high costs of psychosocial risk management (which often requires high-level expertise) are also reasons for creating difficulties in addressing PSR.

The **COVID-19 pandemic had significant impacts on the HeSCare sector**, offering renewed attention and awareness of the importance of the sector and the workforce in the context of challenging and difficult working circumstances. The COVID-19 pandemic particularly exacerbated many serious concerns and weaknesses that already existed in the sector, including the lack of preparedness to face a crisis on such a big scale. Due to being on the front line, the HeSCare workforce encountered numerous threats and risks that had adverse effects on its physical and mental health. Many workers in the sector did not have access to proper protection equipment against the disease. There is also growing evidence reporting persistent symptoms following a COVID-19 infection, leading to different health issues. Many of these issues caused by the pandemic have made the recruitment and retention of HeSCare workers particularly difficult (especially in some subsectors such as elderly and domestic care).

Digitalisation is having a transformative effect on the HeSCare sector. This is particularly the case in the healthcare subsector, whereby digitalisation is adapting interactions and work processes with health professionals, changing how data are shared among providers, as well as how decisions are made about treatment plans and health outcomes. Digitalisation is being used in the field of healthcare in telemedicine, artificial intelligence (AI)-enabled medical devices and blockchain electronic health records. Digitalisation is making access to quality HeSCare services easier, and is streamlining administration and communication between workers, as well as between HeSCare workers and clients. It makes healthcare services more user-friendly and easier to access, improving their quality. Digital-based systems can perform both strenuous and more routine tasks such as patient lifting, reporting of scans or needle insertion, with positive effects on some work-related problems (such as MSDs and stress) and have the potential to support OSH management in terms of the processes involved in carrying out risk assessments, inspections, OSH monitoring, prevention of work-related accidents and reporting.

However, the **use of new technologies in general and digitalisation in particular can adversely influence the work of workers in the HeSCare sector** by increasing cognitive demands and raising psychosocial risks, exacerbating job loss fears (especially among older workers) or deskilling workers. Obstacles to the development and utilisation of digitalisation in the HeSCare sector include the complexity of technology, the use of digital developments to over control workers, inadequate investment in digital infrastructure or the need for continuous training and support for care workers in using evolving digital tools for communication, monitoring and reporting of remote healthcare status.

This study has shown that there are o**ther emerging contextual factors and drivers of change that influence OSH management practices across Europe**. The **ageing of the European population** is one of the most prominent issues with consequences for the European HeSCare sector. Europeans

living longer lives is resulting in an increased demand for healthcare services, additional pressure to expand and adapt HeSCare services for the elderly population, and an increase in the burden of specific diseases (such as Alzheimer's and other dementias and cancers) on health systems. Increasing demands for HeSCare services can also be explained by existing lifestyle-related diseases caused by changes in nutritional habits, smoking, consumption of alcohol and drugs or insufficient physical activity are leading to an increase in the presence of diseases such as obesity, diabetes, cardiovascular diseases, cancer or specific chronic diseases.

The **ongoing challenge of labour shortages in the HeSCare sector** is having a negative influence on the resilience and sustainability of the sector. A **lack of attractiveness** of some of the HeSCare subsectors makes it difficult to attract and retain qualified employees. Tied to the issue of an ageing population, this labour shortage is expected to be exacerbated in the coming years. Public authorities and enterprises/organisations will have to take measures to attract and retain the workforce (for instance, through offering better working conditions, including pay levels).

Global care chains and cross-border care are becoming more prominent in the EU. There is also an increasing trend in the provision of more community-based care models such as home-based and person-centred care services. Despite being more cost effective and enabling individuals to maintain their independence for longer, this also gives rise to new OSH risks for care workers: increased stress, loneliness, lack of support of other colleagues and violence and bullying and harassment from service users.

- **Worker participation in OSH management practices in the HeSCare sector**

Regarding the participation of workers in OSH management practices, having a **health and safety representative is the most common formal form of employee participation**. The **HeSCare sector has a higher presence of formal forms of employee participation** when compared to other sectors. Employee participation is higher among residential care subsector establishments when compared to those in healthcare and social work, and there are significant differences across Member States in the main forms of representation. HeSCare sector establishments often allow their employees to **make more decisions on how to carry out their work**, which is seen most in the residential care subsector. All forms of employee representation are significantly more common in the HeSCare sector than in the total economy.

For collective bargaining, the main distinction in the level and nature of bargaining in the healthcare subsector can be found between public and private sector providers, namely that in the public healthcare subsector, collective bargaining is centralised in most of the countries. Overall, the collective bargaining coverage of workers in the healthcare subsector is very high in most of the countries, particularly in the public sector. The COVID-19 pandemic had a tremendous impact on the HeSCare sector; **social dialogue and worker participation during that period contributed to addressing many of the issues faced by workers in the sector**. The recently created European Social Dialogue Committee for Social Services will also look to further address issues facing the sector, including low pay, strenuous working conditions, precarious employment and damaging gender stereotypes.

- **The economic costs and burdens**

Absenteeism and presenteeism pose substantial economic challenges for the European HeSCare sector. Addressing these issues requires a holistic approach that combines employer initiatives, policy interventions and a commitment to fostering a workplace culture that prioritises employee well-being. The HeSCare sector has the highest levels of sickness absence of longer than 6 months in the EU. The HeSCare sector is also reporting working whilst sick more in comparison with the EU-27 average across all sectors. It must be noted that the differences in presenteeism are quite large throughout the EU-27.

Forming a realistic estimation of the societal costs of work-related accidents is a complicated task, although it is known that poor OSH management results in large number of occupational injuries and illnesses, which generates high costs for all – workers, companies and the whole economy. The **HeSCare sector has seen an increase in accidents causing the loss of 4 days or more since 2011**, with a large surge evident in 2020 (mostly due to COVID-19 infections, and which can be seen for all NACE activities). Understanding and mitigating the economic costs and burdens of absenteeism and

presenteeism and ensuring safe working environments can contribute to a healthier, more productive workforce, contributing to overall economic resilience and sustainability.

8.2 Policy pointers

OSH in the HeSCare sector

- The sector-specific risk landscape reveals the very high prevalence for MSDs and PSR risk factors (and the high prevalence of MSDs and stress, depression and anxiety) in the HeSCare sector. Health and social care workers have the highest share of co-exposure to MSK and psychosocial risks (compared with other economic sectors); this highlights the **need for targeted interventions addressing both MSK and psychosocial risks factors in combination** in the sector. These interventions should take into account the fact that these risks factors interact with each other.
- **The diversity of the HeSCare workforce needs to be considered in the context of OSH policies and OSH preventive action.** For instance, differences in prevalence of MSDs or mental health issues among the HeSCare workforce (such as by gender and age) underlines the need for diversity-sensitive approaches and risk assessments.
- The findings and analysis carried out at subsector level (healthcare, residential care and social work) show differences in terms of OSH management and the prevalence of certain risks and health outcomes. These findings underscore the importance of **considering subsector-specific factors when designing strategies to improve OSH management** in general or more specifically, regarding psychosocial OSH management. Understanding these differences can provide the information and knowledge required to design and implement targeted interventions aimed at promoting psychosocial well-being, for instance, in specific HeSCare workplaces (depending on the subsector, the size of the establishment and other relevant factors).
- **Extra effort should be put into the measures to address MSDs**, considering that the prevalence of MSK risks and MSDs is quite high, but also that preventive measures were less prevalent in the HeSCare sector in 2019 when compared with 2014.
- PSRs and mental health issues (such as stress and anxiety) are highly prevalent in the HeSCare sector. **Efforts to prevent mental health issues in HeSCare establishments must be supported** by acting at various levels: workplace, sectoral, national and European. This can be addressed by taking actions of a different nature: from practical tools and guidelines to the development of recommendations or legislation on this specific issue. The development of EU legislation specifically addressing PSRs was raised by some of the stakeholders involved in the study. It should be acknowledged that there are different stakeholders' perspectives on the matter, which need to be considered in the context of future dialogue.
- There should be **regular psychosocial risk assessments in HeSCare workplaces, alongside clear guidelines for identifying, evaluating, and managing psychosocial risks**, including excessive workload, violence and bullying.
- This study shows that this sector performs well (in comparison with other sectors) in terms of having a range of OSH risk mitigation strategies in place, particularly for stress, bullying and harassment, abuse and threats from external parties. This is evident in the levels of discussion of OSH issues, both among top management and with employee representatives, and in terms of formal employee participation. This is a solid basis on which to **encourage HeSCare establishments to continue to focus further on this to maintain and improve their OSH management**.
- Further statistical analyses carried out under this study show how employee participation is associated with more attention to OSH management and psychosocial OSH management. The HeSCare sector has a higher presence of formal forms of employer participation when compared with other sectors, suggesting that the sector is already performing well in this area (even if there is room for improvement). This should be used as a **foundation to build on and encourage further worker participation and social dialogue at EU, national, sector and workplace level**. Special efforts are likely needed in the private sector and in parts of the sector that are less organised, such

as home-based related activities. This would help to improve the health and safety of HeSCare workers.

- **The specificities of home-based care activities** show at least three important issues to be considered. First, the coverage of domestic care work from the protection afforded by EU OSH legislation. Second, the 'home care setting', which is the recipients' private homes, is a challenging work environment in terms of OSH prevention for several reasons (including specific household hazards, a lack of OSH management practices such as risk assessment and prevention measures and access for inspection). Finally, this sector must tackle challenges related to undeclared work and precarious working and employment conditions and their impact on the health and safety of home-care workers.
- **Tailored actions towards small and medium-sized enterprises (SMEs)** (and more specifically micro and small enterprises (MSEs) are required, as these are less likely to report OSH risks (including psychosocial risks) but are also less inclined to make use of OSH services or manage OSH, including carrying out risk assessments (probably derived from their limited financial and human in-house resources). The analyses confirm the importance of introducing ad hoc measures (such as awareness-raising activities, ad hoc training, specialised technical assistance services) and tailored communication strategies to improve the existing knowledge and expertise among SMEs on OSH issues and their importance.

Economic costs and burdens

- **Accidents at work, absenteeism and presenteeism pose substantial economic challenges, costs and a burden for the HeSCare sector**. Addressing these issues requires a holistic approach that combines policy interventions, employer initiatives and a commitment to fostering a culture in HeSCare organisations that prioritises employee well-being and healthy workplaces.
- To mitigate these economic costs, proactive measures and actions **aimed at primary prevention** are necessary. **HeSCare sector establishments should be encouraged to invest and improve in OSH management in general (such as through better risk assessments and the training of managers and workers) and more specifically, on accident prevention, back-to-work protocols and accommodations to help workers returning from sick leave.**
- OSH plays an important role in allowing workers to continue in work, so they are not forced to leave the sector because of health-related problems. **Particular support is required for HeSCare workers with chronic conditions or ageing health**, **as well as workers with cumulated exposure (over the years) to a combination of OSH risks in the sector**. A driver for developing rehabilitation, return-to-work systems early interventions to minimise disability is the cost of sickness absences and of disability benefit schemes.

Available OSH-related data in the HeSCare sector

This study has shown the need to make visible – in statistical terms – the OSH situation in the HeSCare sector, given the significant challenges faced by workers (seen in the analysis of the various surveys studied in this report). The added value in terms of knowledge of exploiting different EU surveys (in a systematic and structured way) highlights the situation faced by workers in the HeSCare sector. The following measures are proposed to address OSH-related data challenges identified in the context of this study:

- **Ensure EU level data remains comparable over time**, to be able to analyse trends and developments at European level.
- **Address sample size limitations** (by increasing the budget allocated to these surveys) that restricted further analysis for all the surveys analysed in this study. Access to data extending beyond the subsector level (therefore at NACE level 3) would allow for more in-depth and specific analysis.
- Make efforts to ensure that the information collected in the various EU level surveys reflects the **continuous rapid developments in the workplace and changes in the demographics of the HeSCare sector**. This can be to include new or adapted items in relevant survey questionnaires, to better address:

  - **generational differences** in stress and resource factors among the workforce;
  - **new and emerging risks** (with a specific focus on those relating to PSR and digitalisation);
  - the prevalence and working conditions of **EU and non-EU migrants** in the sector;
  - indicators for the impact of **chemical, biological and physical risks** in the sector;
  - the prevalence and impact of **violence and harassment** in the sector; and
  - the impact that different **occupations and roles** within the workforce have on OSH.
- **Carry out statistical analyses at the subsector level**. This study was the first time that this had been carried out for ESENER in the HeSCare sector. Having specific subsector level data allows for more tailored policy actions and responses from policy-makers to address sectoral specific challenges.
- **Carry out more in-depth further analysis** of the variables included in the surveys covered in this study by increasing the budget allocated to statistical reports and analyses (see Methodological appendices). These analyses have provided useful insights into the state of play of OSH and working conditions in the HeSCare sector and should be further explored (also in the context of other economic sectors). This action allows, among others, the implementation of more specific and targeted preventive action at subsector level.

Going beyond OSH

In order to prevent and address the main OSH risks and health outcomes identified through the data analysis carried out in this study, there needs to be a **collaborative effort between stakeholders from different policy areas to improve the health and safety of HeSCare workers**. This study indicates that if the health and safety of workers is to be significantly improved a combination of efforts is required from stakeholders from different policy areas. Several key issues, challenges and trends identified in this report have an influence and impact on the health and safety of workers and can only be addressed under other policy areas (beyond OSH): public health policy, healthcare and long-term care policies, employment policy, and patients' rights and quality of care. Key factors to be addressed include, among many others, resolving staffing shortages, addressing existing financing issues in the sector (ensuring sufficient funding of healthcare and long-term care systems), improving employment conditions, protecting the workforce from factors such as third party violence, managing an ageing population and an ageing workforce, and improving the sector´s attractiveness and its capacity to retain its workforce.

The data presented in this study show that the **COVID-19 pandemic has had an important impact on the health and safety of HeSCare workers**, contributing to increasing the profile of the sector in the public eye. The numerous initiatives and strategies carried out at EU and national level that target the sector can be considered as a way of recognising its key role and importance in Europe. T**he pandemic could be used as a catalyst to improve OSH in the sector.** Measures to **guarantee the right of HeSCare sector workers to a high level of protection of their health and safety at work** are needed. These measures are also needed to **guarantee the right of EU citizens and patients to timely access to affordable, preventive and curative healthcare of good quality** and the right to **affordable, long-term care services of good quality**, in particular home-care and community-based services. It is important to underline that without healthy and safe HeSCare workers, the provision of good-quality health and long-term care services is highly compromised. The pandemic has also helped to make more apparent the links between OSH and public health policy, and the need to strengthen collaboration in these two policy areas.

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Appendices

A. Methodological appendix 1 — Logistic regression analysis of EWCTS on OSH risks in the HeSCare sector

Overview

Which research questions are answered with this analysis?

1. Which OSH risks in the HeSCare sector (NACE codes Q86, Q87, Q88) are more frequently related with health outcomes?
2. Which groups of workers are the most at risk in the HeSCare sector?

Which data were used?

The analyses are based on data from the EWCTS 2021 of participants working in the HeSCare sector in EU Member States (EU-27). This sample contained 4,695 persons in healthcare (subsector 86), 1,526 in residential care (subsector 87) and 1,460 in social work (subsector 88). In the multilevel analyses the subsectors and country differences were taken into account.

Which dependent variables were examined?

The EWCTS 2021 contains several health outcomes. Two outcomes were focussed on, a) MSD symptoms (backache or muscular pain in upper or lower limbs) and b) psychological symptoms (emotional exhaustion).

a) The EWCTS 2021 contains the question ' Over the last 12 months, did you have any of the following health problems?' (q78). The existence of MSD symptoms is identified with a positive answer (='Yes') to one or more of the answer categories 'C. Backache', 'D. Muscular pains in shoulders, neck and/or upper limbs (arms, elbows, wrists, hand etc.)' or 'E. Muscular pains in lower limbs (hips, legs, knees, feet etc.)'.

b) As outcome measure covering mental health issues, the item on emotional exhaustion (q90G) was used. Persons are considered emotionally exhausted if they indicate that they feel 'always' or 'most of the time' emotionally drained by work. According to a recent Eurofound report this item can be considered as a proxy for burnout.[42]

Which explanatory variables were included?

Exposure variables, background variables and controls were included:

- The **exposure variables** included 'work at short notice' (q40; several times a month or more), chemical exposure (q29G; handling or being in skin contact several times a month or more), physical workload (sometimes/often/always: q30A tiring positions, q30B lifting or moving people, q30C carrying or moving heavy loads, q30E repetitive hand movements), discrimination (q72; yes), physical violence or sexual harassment or bullying (yes on 81A, q81B or q81C), work intensity (mean of q49A working at high speed and q49B working to tight deadlines more than half of the time) and low task autonomy (mean of never/rarely/sometimes deciding yourself on q54A order of task, q54B methods of work, q54C speed of work).
- The **background variables** included age, gender and precariousness[43]. Precariousness was defined as working usually less than 20 hrs per week (q24) **or** having a temporary contract (Q11) and having multiple jobs (qN1) **or** having difficulty making ends (q100; with some to great difficulty).
- **Controls** were occupation (health (associate) professionals and other occupations) and workplace size (q16A). To adjust for country and sector multilevel models were used.

[42] Eurofound (2023), Psychosocial risks to workers' well-being: Lessons from the COVID-19 pandemic, European Working Conditions Telephone Survey 2021 series, Publications Office of the European Union, Luxembourg.

[43] Unlike previous editions of the EWCS, the EWCTS contains no questions about country of birth. Therefore, it is not possible to include migrant status in the analyses.

Which estimation techniques were used?

Logistic regression analysis was used. The EWCTS has a hierarchical structure; measurements at the individual level are nested in different sectors and in different countries. Consequence is that individuals working in the same sector or country tend to be more similar to each other than they are to individuals form different sectors or countries. Traditional logistic regression analysis treats the measurements of individuals as independent observations. This might lead to an overstatement of statistical significance. In order to account for the hierarchical structure of the data, a multilevel model was used to adjust for the influence of country and subsector.

In addition, the data were weighted in all univariate and multivariate analyses using proportional weights. Proportional weights are on average equal to 1, and thus ensure that the weighting process does not result in an artificial increase nor decrease of the total number of cases.

In step 1, the relationship was tested in separate models between the exposure variables, background variables and controls and the dependent variables. Furthermore, the correlations between the independent variables were examined to avoid collinearity due to highly correlated variables.

In step 2, one multivariate model was tested for each outcome the relationships between the independent variables for which step 1 showed an association with the dependent variable in question.

In step 3, all other variables were added to the model.

Results of the analysis

In the first step, all **exposure variables** under study were found to be associated with MSD symptoms, except for work at short notice. Of the background variables, gender (being a woman) and age group (45 to 55 years compared to 16-34 years) were found to be associated with MSD symptoms while precariousness was not. Occupation was also associated with MSD symptoms (Health associate professionals compared to health professionals) while workplace size was not. After adjustment for all other statistically significant factors, chemical exposure, work intensity and age were no longer significant. The full model containing all models showed the same results.

The analyses using emotional exhaustion as the dependent variable showed in step 1 that all exposure variables were statistically significantly associated. Regarding the background variables and controls, workers in the oldest age group (over 56 years) were at a significant lower risk than workers in the reference group (16-34 years), health associate professionals at a lower risk than associate professionals, and workers in large companies at a higher risk than those in smaller companies. After adjustment for the other significantly associated variables in the second step of the exposure variables only discrimination, violence and harassment and work intensity were still significantly associated with emotional exhaustion. Company size showed a reversed association with larger companies being at a lower risk, although for most sizes this was not statistically significant. The addition of the other variables in the third step did not change the results.

In summary, the occupational risks with a strong association with MSD symptoms as well as emotional exhaustion are discrimination and violence, harassment and bullying. Additionally, a high physical workload and a low task autonomy are associated with MSD symptoms, while work intensity is associated with emotional exhaustion. Based on the background characteristics that are available in the EWCTS, groups that were consistently more at risk were not found. However, women as well as health associate professionals are more at risk of MSD symptoms, and older workers were more at risk of emotional exhaustion, compared to the age group 16-34 years.

Tables

Within the EWCTS2021-datafile *('ewcts_2021_isco2_nace2_nuts2.sav')*, a general selection on only the EU-27countries and only the *'HeSCare'* sector *('NACE_lev2_labelbis' = 86, 87 and 88)* was made. The dependent variables were:

- *'[MSD_Symptoms] Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months]' 0 = 'No'; 1 = 'Yes',* and:
- *'[exhaust_emotbis] Feel emotionally exhausted by my work' 0 = 'Never/rarely/sometimes'; 1 = 'Often/always'*.

An example of the SPSS-syntax that has been used is:

```
genlinmixed
 /data_structure subjects=Country * NACE_lev2_labelbis
 /fields target=MSD_Symptoms analysis_weight=Proportional_Weight
 /target_options reference=0 distribution=multinomial link=logit
 /fixed use_intercept=true effects=
   shortnoticebis, chemicalsbis, Physical_Workload, discriminationbis,
   Violence_Harassment, workintensitybis2, taskautonomybis2, age_groupsbis,
   genderbis, precar, ISCO_2_08bis, wp_size_rec_EU_def
 /random use_intercept=true subjects=Country * NACE_lev2_labelbis
   covariance_type=variance_components
 /build_options inputs_category_order=descending.
```

Table A 1 contains an overview of all the variables and cases that have been used in the analyses. Percentages are column percentages and are tested with the Pearson χ^2-test (horizontal comparisons). Contrast: subgroup vs rest. ▲ and ▼: p<0,05 and Cohen's d⩾0,20. Δ and ∇: p<0,05 but Cohen's d<0,20.

Table A 1: Overview of all the variables and cases that have been used in the EWCTS analyses

Column percentages	Healthcare, residential care, and social work *[▲∇: subgroup vs rest]*			Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months]			Feel emotionally exhausted by my work			
n: Numerator / N: Denominator	Health-care [58,2%]	Resi-dential care [23,3%]	Social work [18,6%]	Total	No [22,5%]	Yes [77,5%]	Total	Never/-rarely/-some-times [76,4%]	Often/-always [23,6%]	Total
Country										
1 **Austria**	**2,4%**	**1,7%**	**2,1%**	**2,2%**	**2,6%**	**1,8%**	**2,0%**	**2,4%**	**2,3%**	**2,4%**
UNweighted-n	*173*	*42*	*53*	*268*	*37*	*83*	*120*	*113*	*35*	*148*
Proportional-n	*86*	*25*	*25*	*135*	*18*	*42*	*60*	*58*	*18*	*75*
2 **Belgium**	**2,6%∇**	**4,2%Δ**	**4,8%Δ**	**3,4%**	**3,8%**	**3,5%**	**3,6%**	**3,3%**	**2,5%**	**3,2%**
UNweighted-n	*272*	*170*	*158*	*600*	*73*	*239*	*312*	*235*	*53*	*288*
Proportional-n	*93*	*61*	*55*	*209*	*26*	*83*	*109*	*81*	*19*	*100*
3 **Bulgaria**	**0,9%**	**0,2%∇**	**0,8%**	**0,8%**	**0,7%**	**0,8%**	**0,8%**	**0,8%**	**0,6%**	**0,7%**
-UNweighted-n	*86*	*7*	*25*	*118*	*10*	*49*	*59*	*47*	*12*	*59*
Proportional-n	*34*	*4*	*10*	*47*	*5*	*20*	*24*	*19*	*4*	*23*
4 **Cyprus**	**0,2%**	**0,01%**	**0,05%**	**0,1%**	**0,2%**	**0,1%**	**0,1%**	**0,1%**	**0,2%**	**0,1%**
UNweighted-n	*67*	*3*	*7*	*77*	*14*	*29*	*43*	*19*	*15*	*34*
Proportional-n	*6*	*0*	*1*	*6*	*1*	*3*	*4*	*1*	*1*	*3*
5 Czechia	**2,2%Δ**	**1,0%∇**	**1,6%**	**1,8%**	**2,2%**	**1,8%**	**1,9%**	**1,8%**	**1,8%**	**1,8%**
UNweighted-n	*127*	*18*	*35*	*180*	*30*	*69*	*99*	*60*	*21*	*81*
Proportional-n	*81*	*15*	*18*	*114*	*15*	*42*	*57*	*43*	*14*	*57*
6 Germany	**26,2%**	**24,8%**	**24,1%**	**25,5%**	**28,4%Δ**	**24,5%∇**	**25,4%**	**25,7%**	**25,5%**	**25,7%**
UNweighted-n	*361*	*106*	*99*	*566*	*70*	*215*	*285*	*219*	*62*	*281*
Proportional-n	*950*	*360*	*278*	*1.588*	*195*	*580*	*775*	*623*	*191*	*813*
7 Denmark	**2,2%**	**2,7%**	**2,9%**	**2,4%**	**2,8%**	**2,3%**	**2,4%**	**2,5%**	**2,1%**	**2,4%**
UNweighted-n	*135*	*69*	*63*	*267*	*33*	*100*	*133*	*106*	*27*	*133*
Proportional-n	*78*	*40*	*33*	*151*	*19*	*55*	*74*	*61*	*16*	*76*

Column percentages	Healthcare, residential care, and social work *[▲▽: subgroup vs rest]*			Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months]			Feel emotionally exhausted by my work			
n: Numerator / N: Denominator	Health-care [58,2%]	Resi-dential care [23,3%]	Social work [18,6%]	Total	No [22,5%]	Yes [77,5%]	Total	Never/-rarely/-some-times [76,4%]	Often/-always [23,6%]	Total
8 Estonia	**0,2%**	**0,1%**	**0,1%**	**0,2%**	**0,2%**	**0,2%**	**0,2%**	**0,2%**	**0,1%**	**0,2%**
UNweighted-n	*104*	*18*	*12*	*134*	*14*	*56*	*70*	*52*	*12*	*64*
Proportional-n	*8*	*2*	*1*	*11*	*1*	*5*	*6*	*4*	*1*	*5*
9 Greece	**2,0%Δ**	**0,1%▼**	**0,5%∇**	**1,3%**	**1,1%**	**1,3%**	**1,3%**	**1,1%**	**2,0%**	**1,3%**
UNweighted-n	*85*	*1*	*7*	*93*	*10*	*35*	*45*	*29*	*19*	*48*
Proportional-n	*73*	*1*	*6*	*79*	*7*	*31*	*38*	*26*	*15*	*41*
10 Spain	**9,9%Δ**	**6,8%∇**	**5,7%∇**	**8,4%**	**5,0%∇**	**8,8%Δ**	**8,0%**	**8,3%∇**	**10,9%Δ**	**8,9%**
UNweighted-n	*196*	*43*	*36*	*275*	*20*	*108*	*128*	*102*	*45*	*147*
Proportional-n	*360*	*99*	*65*	*524*	*35*	*209*	*243*	*200*	*81*	*281*
11 Finland	**1,4%∇**	**2,0%**	**3,2%Δ**	**1,9%**	**1,2%**	**2,2%**	**2,0%**	**1,9%**	**1,5%**	**1,8%**
UNweighted-n	*134*	*65*	*98*	*297*	*22*	*127*	*149*	*121*	*27*	*148*
Proportional-n	*51*	*29*	*37*	*117*	*8*	*52*	*60*	*46*	*11*	*57*
12 France	**15,3%∇**	**15,8%∇**	**29,4%▲**	**18,0%**	**14,3%∇**	**19,4%Δ**	**18,2%**	**16,0%∇**	**23,0%Δ**	**17,6%**
UNweighted-n	*205*	*75*	*117*	*397*	*34*	*161*	*195*	*138*	*63*	*201*
Proportional-n	*553*	*229*	*340*	*1.123*	*98*	*458*	*556*	*387*	*172*	*559*
13 Croatia	**0,6%**	**0,5%**	**0,5%**	**0,6%**	**0,5%**	**0,7%**	**0,7%**	**0,5%**	**0,6%**	**0,5%**
UNweighted-n	*107*	*26*	*19*	*152*	*17*	*68*	*85*	*50*	*17*	*67*
Proportional-n	*23*	*7*	*6*	*36*	*4*	*16*	*20*	*12*	*4*	*16*
14 Hungary	**1,6%**	**0,7%∇**	**2,0%**	**1,5%**	**2,4%Δ**	**1,0%∇**	**1,3%**	**1,5%**	**2,0%**	**1,6%**
UNweighted-n	*68*	*11*	*26*	*105*	*17*	*27*	*44*	*43*	*18*	*61*
Proportional-n	*56*	*11*	*23*	*91*	*17*	*24*	*40*	*36*	*15*	*50*
15 Ireland	**1,4%**	**1,3%**	**1,5%**	**1,4%**	**1,9%**	**1,4%**	**1,5%**	**1,3%**	**1,3%**	**1,3%**
UNweighted-n	*138*	*41*	*52*	*231*	*34*	*88*	*122*	*80*	*29*	*109*
Proportional-n	*50*	*19*	*17*	*87*	*13*	*34*	*46*	*31*	*10*	*40*
16 Italy	**9,4%Δ**	**10,5%Δ**	**3,4%▼**	**8,6%**	**8,1%**	**8,9%**	**8,7%**	**9,9%▲**	**3,8%▼**	**8,4%**
UNweighted-n	*183*	*68*	*16*	*267*	*31*	*101*	*132*	*118*	*17*	*135*
Proportional-n	*342*	*152*	*39*	*534*	*55*	*211*	*267*	*239*	*28*	*267*

Column percentages	Healthcare, residential care, and social work *[▲▽: subgroup vs rest]*			Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months]			Feel emotionally exhausted by my work			
n: Numerator / N: Denominator	Health-care [58,2%]	Resi-dential care [23,3%]	Social work [18,6%]	Total	No [22,5%]	Yes [77,5%]	Total	Never/-rarely/-some-times [76,4%]	Often/-always [23,6%]	Total
17 Lithuania	**0,6%**	**0,3%**	**0,3%**	**0,5%**	**0,4%**	**0,4%**	**0,4%**	**0,5%**	**0,5%**	**0,5%**
UNweighted-n	*133*	*17*	*19*	*169*	*17*	*59*	*76*	*68*	*23*	*91*
Proportional-n	*21*	*4*	*3*	*28*	*2*	*10*	*13*	*11*	*4*	*15*
18 Luxembourg	**0,1%**	**0,1%**	**0,2%**	**0,2%**	**0,1%**	**0,2%**	**0,2%**	**0,1%**	**0,1%**	**0,1%**
UNweighted-n	*79*	*35*	*44*	*158*	*16*	*70*	*86*	*56*	*16*	*72*
Proportional-n	*5*	*2*	*3*	*10*	*1*	*4*	*5*	*4*	*1*	*4*
19 Latvia	**0,3%**	**0,3%**	**0,1%**	**0,3%**	**0,2%**	**0,3%**	**0,2%**	**0,3%**	**0,2%**	**0,3%**
UNweighted-n	*86*	*39*	*11*	*136*	*11*	*51*	*62*	*58*	*16*	*74*
Proportional-n	*10*	*5*	*2*	*17*	*1*	*6*	*7*	*8*	*2*	*10*
20 Malta	**0,1%**	**0,2%**	**0,1%**	**0,1%**	**0,1%**	**0,1%**	**0,1%**	**0,1%**	**0,1%**	**0,1%**
UNweighted-n	*69*	*43*	*13*	*125*	*9*	*56*	*65*	*42*	*17*	*59*
Proportional-n	*4*	*3*	*1*	*8*	*1*	*3*	*4*	*3*	*1*	*4*
21 Netherlands	**4,8%▼**	**15,5%▲**	**4,4%▽**	**7,2%**	**11,1%△**	**6,7%▽**	**7,7%**	**8,2%▲**	**2,0%▼**	**6,7%**
UNweighted-n	*130*	*183*	*44*	*357*	*56*	*128*	*184*	*160*	*12*	*172*
Proportional-n	*175*	*225*	*51*	*450*	*76*	*160*	*236*	*199*	*15*	*214*
22 Poland	**6,4%△**	**2,3%▽**	**3,9%▽**	**5,0%**	**3,6%**	**4,1%**	**4,0%**	**5,4%▽**	**7,7%△**	**6,0%**
UNweighted-n	*174*	*21*	*24*	*219*	*19*	*72*	*91*	*89*	*39*	*128*
Proportional-n	*233*	*34*	*45*	*311*	*24*	*98*	*122*	*131*	*57*	*189*
23 Portugal	**2,3%**	**2,8%**	**1,6%**	**2,3%**	**1,6%**	**2,8%**	**2,6%**	**2,0%**	**2,4%**	**2,1%**
UNweighted-n	*117*	*53*	*26*	*196*	*16*	*89*	*105*	*68*	*23*	*91*
Proportional-n	*85*	*40*	*18*	*143*	*11*	*67*	*78*	*47*	*18*	*65*
24 Romania	**2,1%**	**1,4%**	**2,3%**	**2,0%**	**2,6%**	**1,8%**	**2,0%**	**2,1%**	**1,3%**	**2,0%**
UNweighted-n	*123*	*17*	*19*	*159*	*17*	*59*	*76*	*69*	*14*	*83*
Proportional-n	*76*	*20*	*27*	*123*	*18*	*43*	*61*	*52*	*10*	*62*
25 Sweden	**3,6%**	**3,4%**	**2,8%**	**3,4%**	**3,5%**	**3,4%**	**3,5%**	**3,1%**	**3,9%**	**3,3%**
UNweighted-n	*190*	*71*	*47*	*308*	*38*	*114*	*152*	*118*	*38*	*156*
Proportional-n	*129*	*49*	*32*	*210*	*24*	*81*	*105*	*76*	*29*	*105*

Column percentages	Healthcare, residential care, and social work *[▲▽: subgroup vs rest]*			Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months]			Feel emotionally exhausted by my work			
n: Numerator / N: Denominator	Health-care [58,2%]	Resi-dential care [23,3%]	Social work [18,6%]	Total	No [22,5%]	Yes [77,5%]	Total	Never/-rarely/-some-times [76,4%]	Often/-always [23,6%]	Total
26 Slovenia	**0,4%**	**0,3%**	**0,4%**	**0,4%**	**0,5%**	**0,3%**	**0,4%**	**0,4%**	**0,3%**	**0,4%**
UNweighted-n	*152*	*40*	*43*	*235*	*36*	*85*	*121*	*86*	*28*	*114*
Proportional-n	*15*	*4*	*4*	*23*	*3*	*8*	*12*	*9*	*2*	*11*
27 Slovakia	**0,7%**	**0,7%**	**1,5%Δ**	**0,9%**	**1,1%**	**0,9%**	**0,9%**	**0,6%∇**	**1,5%Δ**	**0,8%**
UNweighted-n	*90*	*17*	*34*	*141*	*21*	*47*	*68*	*47*	*26*	*73*
Proportional-n	*27*	*10*	*18*	*55*	*8*	*21*	*28*	*15*	*11*	*26*
UNweighted-N	*3.784*	*1.299*	*1.147*	*6.230*	*722*	*2.385*	*3.107*	*2.393*	*724*	*3.117*
Proportional-N	*3.625*	*1.449*	*1.156*	*6.230*	*687*	*2.365*	*3.052*	*2.420*	*749*	*3.169*
[NACE_lev2_labelbis] **Healthcare, residential care, and social work**										
86 Healthcare	**100%**	**0%**	**0%**	**58,2%**	**57,8%**	**59,3%**	**59,0%**	**55,9%∇**	**63,0%Δ**	**57,6%**
UNweighted-n	*3.784*	*0*	*0*	*3.784*	*430*	*1.469*	*1.899*	*1.415*	*466*	*1.881*
Proportional-n	*3.625*	*0*	*0*	*3.625*	*397*	*1.403*	*1.800*	*1.352*	*472*	*1.824*
87 Residential care	**0%**	**100%**	**0%**	**23,3%**	**22,6%**	**23,6%**	**23,4%**	**23,6%**	**21,8%**	**23,2%**
UNweighted-n	*0*	*1.299*	*0*	*1.299*	*137*	*519*	*656*	*504*	*138*	*642*
Proportional-n	*0*	*1.449*	*0*	*1.449*	*155*	*559*	*714*	*571*	*164*	*734*
88 Social work	**0%**	**0%**	**100%**	**18,6%**	**19,7%**	**17,0%**	**17,6%**	**20,5%Δ**	**15,2%∇**	**19,3%**
UNweighted-n	*0*	*0*	*1.147*	*1.147*	*155*	*397*	*552*	*474*	*120*	*594*
Proportional-n	*0*	*0*	*1.156*	*1.156*	*135*	*403*	*538*	*497*	*114*	*611*
UNweighted-N	*3.784*	*1.299*	*1.147*	*6.230*	*722*	*2.385*	*3.107*	*2.393*	*724*	*3.117*
Proportional-N	*3.625*	*1.449*	*1.156*	*6.230*	*687*	*2.365*	*3.052*	*2.420*	*749*	*3.169*
[MSD_Symptoms] **Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs** [Last 12 months]										
0 No	**22,0%**	**21,7%**	**25,1%**	**22,5%**	**100%**	**0%**	**22,5%**	**--**	**--**	**--**
UNweighted-n	*430*	*137*	*155*	*722*	*722*	*0*	*722*	*--*	*--*	*--*

Column percentages	Healthcare, residential care, and social work *[▲▽: subgroup vs rest]*			Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months]			Feel emotionally exhausted by my work			
n: Numerator / N: Denominator	Health-care [58,2%]	Resi-dential care [23,3%]	Social work [18,6%]	Total	No [22,5%]	Yes [77,5%]	Total	Never/-rarely/-some-times [76,4%]	Often/-always [23,6%]	Total
Proportional-n	*397*	*155*	*135*	*687*	*687*	*0*	*687*	--	--	--
1 Yes	**78,0%**	**78,3%**	**74,9%**	**77,5%**	**0%**	**100%**	**77,5%**	**--**	**--**	**--**
UNweighted-n	*1.469*	*519*	*397*	*2.385*	*0*	*2.385*	*2.385*	--	--	--
Proportional-n	*1.403*	*559*	*403*	*2.365*	*0*	*2.365*	*2.365*	--	--	--
UNweighted-N	*1.899*	*656*	*552*	*3.107*	*722*	*2.385*	*3.107*	--	--	--
Proportional-N	*1.800*	*714*	*538*	*3.052*	*687*	*2.365*	*3.052*	--	--	--
[exhaust_emotbis] **Feel emotionally exhausted by my work** **0 Never/rarely/sometimes**	**74,1%▽**	**77,7%**	**81,4%△**	**76,4%**	**--**	**--**	**--**	**100%**	**0%**	**76,4%**
UNweighted-n	*1.415*	*504*	*474*	*2.393*	--	--	--	*2.393*	*0*	*2.393*
Proportional-n	*1.352*	*571*	*497*	*2.420*	--	--	--	*2.420*	*0*	*2.420*
1 Often/always	**25,9%△**	**22,3%**	**18,6%▽**	**23,6%**	**--**	**--**	**--**	**0%**	**100%**	**23,6%**
UNweighted-n	*466*	*138*	*120*	*724*	--	--	--	*0*	*724*	*724*
Proportional-n	*472*	*164*	*114*	*749*	--	--	--	*0*	*749*	*749*
UNweighted-N	*1.881*	*642*	*594*	*3.117*	--	--	--	*2.393*	*724*	*3.117*
Proportional-N	*1.824*	*734*	*611*	*3.169*	--	--	--	*2.420*	*749*	*3.169*
[shortnoticebis] **Have you been requested to come into work at short notice?** [Last 12 months] **0 (Almost) never**	**77,8%**	**78,3%**	**81,2%**	**78,5%**	**80,6%**	**77,8%**	**78,4%**	**80,9%▲**	**70,5%▼**	**78,5%**
UNweighted-n	*2.022*	*654*	*658*	*3.334*	*353*	*1.118*	*1.471*	*1.484*	*374*	*1.858*
Proportional-n	*1.863*	*760*	*612*	*3.236*	*310*	*1.082*	*1.393*	*1.456*	*379*	*1.835*
1 At least several times a month	**22,2%**	**21,7%**	**18,8%**	**21,5%**	**19,4%**	**22,2%**	**21,6%**	**19,1%▼**	**29,5%▲**	**21,5%**
UNweighted-n	*481*	*193*	*108*	*782*	*67*	*291*	*358*	*291*	*133*	*424*

Column percentages	Healthcare, residential care, and social work *[▲▽: subgroup vs rest]*			Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months]			Feel emotionally exhausted by my work			
n: Numerator / N: Denominator	Health-care [58,2%]	Resi-dential care [23,3%]	Social work [18,6%]	Total	No [22,5%]	Yes [77,5%]	Total	Never/-rarely/-some-times [76,4%]	Often/-always [23,6%]	Total
Proportional-n	*533*	*211*	*142*	*886*	*75*	*309*	*384*	*343*	*159*	*502*
UNweighted-N	*2.503*	*847*	*766*	*4.116*	*420*	*1.409*	*1.829*	*1.775*	*507*	*2.282*
Proportional-N	*2.397*	*971*	*755*	*4.122*	*385*	*1.392*	*1.777*	*1.799*	*538*	*2.337*
[chemicalsbis] **Handling or being in skin contact with chemical products or substance**										
0 Never / rarely	**46,9%▼**	**56,3%Δ**	**71,2%▲**	**53,6%**	**66,6%▲**	**49,5%▼**	**53,3%**	**56,7%▲**	**44,6%▼**	**53,8%**
UNweighted-n	*1.802*	*782*	*886*	*3.470*	*491*	*1.256*	*1.747*	*1.389*	*331*	*1.720*
Proportional-n	*1.701*	*813*	*822*	*3.337*	*457*	*1.169*	*1.626*	*1.371*	*333*	*1.703*
1 Sometimes / often / always	**53,1%▲**	**43,7%∇**	**28,8%▼**	**46,4%**	**33,4%▼**	**50,5%▲**	**46,7%**	**43,3%▼**	**55,4%▲**	**46,2%**
UNweighted-n	*1.977*	*514*	*260*	*2.751*	*230*	*1.125*	*1.355*	*1.002*	*391*	*1.393*
Proportional-n	*1.922*	*631*	*333*	*2.886*	*229*	*1.195*	*1.424*	*1.049*	*413*	*1.461*
UNweighted-N	*3.779*	*1.296*	*1.146*	*6.221*	*721*	*2.381*	*3.102*	*2.391*	*722*	*3.113*
Proportional-N	*3.623*	*1.444*	*1.155*	*6.222*	*686*	*2.363*	*3.049*	*2.419*	*745*	*3.165*
[Physical_Workload] **Tiring positions and/or lifting or moving people and/or carrying or moving heavy loads and/or repetitive hand movements**										
0 Never / rarely	**8,7%∇**	**8,3%∇**	**15,9%▲**	**9,9%**	**21,2%▲**	**8,1%▼**	**10,9%**	**10,4%▲**	**4,8%▼**	**9,0%**
UNweighted-n	*317*	*107*	*157*	*581*	*154*	*188*	*342*	*207*	*32*	*239*
Proportional-n	*272*	*109*	*158*	*539*	*126*	*173*	*299*	*207*	*32*	*240*
1 Sometimes / often / always	**91,3%Δ**	**91,7%Δ**	**84,1%▼**	**90,1%**	**78,8%▼**	**91,9%▲**	**89,1%**	**89,6%▼**	**95,2%▲**	**91,0%**
UNweighted-n	*2.899*	*1.064*	*784*	*4.747*	*469*	*1.959*	*2.428*	*1.715*	*599*	*2.314*
Proportional-n	*2.841*	*1.208*	*831*	*4.880*	*468*	*1.968*	*2.436*	*1.786*	*649*	*2.435*
UNweighted-N	*3.216*	*1.171*	*941*	*5.328*	*623*	*2.147*	*2.770*	*1.922*	*631*	*2.553*

Column percentages	Healthcare, residential care, and social work *[▲▽: subgroup vs rest]*			Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months]			Feel emotionally exhausted by my work			
n: Numerator / N: Denominator	Health-care [58,2%]	Resi-dential care [23,3%]	Social work [18,6%]	Total	No [22,5%]	Yes [77,5%]	Total	Never/-rarely/-some-times [76,4%]	Often/-always [23,6%]	Total
Proportional-N	*3.113*	*1.316*	*989*	*5.418*	*594*	*2.141*	*2.735*	*1.993*	*682*	*2.675*
[discriminationbis] **Have you been discriminated at work?** [Past 12 months]										
0 No	**85,2%**	**84,7%**	**86,5%**	**85,3%**	**90,8%▲**	**81,5%▼**	**83,6%**	**91,3%▲**	**73,8%▼**	**87,2%**
UNweighted-n	*3.214*	*1.092*	*988*	*5.294*	*658*	*1.970*	*2.628*	*2.154*	*508*	*2.662*
Proportional-n	*3.075*	*1.223*	*998*	*5.296*	*622*	*1.922*	*2.544*	*2.202*	*549*	*2.750*
1 Yes	**14,8%**	**15,3%**	**13,5%**	**14,7%**	**9,2%▼**	**18,5%▲**	**16,4%**	**8,7%▼**	**26,2%▲**	**12,8%**
UNweighted-n	*553*	*203*	*156*	*912*	*63*	*406*	*469*	*233*	*208*	*441*
Proportional-n	*534*	*221*	*155*	*911*	*63*	*436*	*499*	*210*	*195*	*405*
UNweighted-N	*3.767*	*1.295*	*1.144*	*6.206*	*721*	*2.376*	*3.097*	*2.387*	*716*	*3.103*
Proportional-N	*3.609*	*1.444*	*1.154*	*6.207*	*685*	*2.358*	*3.043*	*2.412*	*743*	*3.155*
[Violence_Harassment] **Physical violence, sexual harassment or bullying** [Last month]										
0 No	**77,0%**	**75,0%▽**	**82,0%△**	**77,5%**	**87,4%▲**	**72,2%▼**	**75,6%**	**85,0%▲**	**62,3%▼**	**79,8%**
UNweighted-n	*1.955*	*604*	*587*	*3.146*	*463*	*1.268*	*1.731*	*1.152*	*260*	*1.412*
Proportional-n	*1.852*	*713*	*639*	*3.204*	*443*	*1.265*	*1.708*	*1.221*	*268*	*1.489*
1 Yes	**23,0%**	**25,0%△**	**18,0%▽**	**22,5%**	**12,6%▼**	**27,8%▲**	**24,4%**	**15,0%▼**	**37,7%▲**	**20,2%**
UNweighted-n	*556*	*247*	*171*	*974*	*82*	*493*	*575*	*250*	*148*	*398*
Proportional-n	*552*	*237*	*140*	*929*	*64*	*487*	*551*	*216*	*162*	*378*
UNweighted-N	*2.511*	*851*	*758*	*4.120*	*545*	*1.761*	*2.306*	*1.402*	*408*	*1.810*
Proportional-N	*2.404*	*950*	*779*	*4.134*	*507*	*1.752*	*2.259*	*1.437*	*430*	*1.867*
[workintensitybis2] **Work intensity: Working at very high speed and/or to tight deadlines** [Dichotomized scale; 2 items]										
0 Low (never / rarely / sometimes)	**51,3%▼**	**66,7%▲**	**72,0%▲**	**58,7%**	**68,4%▲**	**55,5%▼**	**58,4%**	**65,7%▲**	**37,2%▼**	**58,9%**

Column percentages	Healthcare, residential care, and social work *[▲▽: subgroup vs rest]*			Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months]			Feel emotionally exhausted by my work			
n: Numerator / N: Denominator	Health-care [58,2%]	Resi-dential care [23,3%]	Social work [18,6%]	Total	No [22,5%]	Yes [77,5%]	Total	Never/-rarely/-some-times [76,4%]	Often/-always [23,6%]	Total
UNweighted-n	*2.002*	*851*	*809*	*3.662*	*486*	*1.344*	*1.830*	*1.543*	*287*	*1.830*
Proportional-n	*1.845*	*952*	*826*	*3.623*	*468*	*1.297*	*1.765*	*1.574*	*276*	*1.850*
1 High (often/always)	**48,7%▲**	**33,3%▼**	**28,0%▼**	**41,3%**	**31,6%▼**	**44,5%▲**	**41,6%**	**34,3%▼**	**62,8%▲**	**41,1%**
UNweighted-n	*1.733*	*428*	*327*	*2.488*	*232*	*1.008*	*1.240*	*820*	*425*	*1.245*
Proportional-n	*1.751*	*475*	*321*	*2.546*	*216*	*1.040*	*1.256*	*823*	*466*	*1.289*
UNweighted-N	*3.735*	*1.279*	*1.136*	*6.150*	*718*	*2.352*	*3.070*	*2.363*	*712*	*3.075*
Proportional-N	*3.595*	*1.426*	*1.147*	*6.168*	*684*	*2.337*	*3.022*	*2.397*	*742*	*3.138*
[taskautonomybis2] **Task autonomy (deciding on order of tasks, methods and/or speed or rate of work)** [Dichotomized scale, 3 items]										
0 Often/always	**38,6%▼**	**46,9%Δ**	**52,5%▲**	**43,1%**	**53,6%▲**	**36,4%▼**	**40,2%**	**48,0%▲**	**36,8%▼**	**45,4%**
UNweighted-n	*964*	*377*	*418*	*1.759*	*201*	*551*	*752*	*821*	*184*	*1.005*
Proportional-n	*915*	*445*	*398*	*1.759*	*210*	*501*	*711*	*849*	*199*	*1.047*
1 Never / rarely / sometimes	**61,4%▲**	**53,1%∇**	**47,5%▼**	**56,9%**	**46,4%▼**	**63,6%▲**	**59,8%**	**52,0%▼**	**63,2%▲**	**54,6%**
UNweighted-n	*1.522*	*454*	*350*	*2.326*	*224*	*847*	*1.071*	*933*	*321*	*1.254*
Proportional-n	*1.454*	*504*	*361*	*2.318*	*182*	*874*	*1.056*	*921*	*341*	*1.262*
UNweighted-N	*2.486*	*831*	*768*	*4.085*	*425*	*1.398*	*1.823*	*1.754*	*505*	*2.259*
Proportional-N	*2.369*	*949*	*760*	*4.077*	*391*	*1.376*	*1.767*	*1.770*	*540*	*2.309*
[age_groupsbis] **Age**										
16 to 34 years (=code 1)	**28,9%Δ**	**25,8%∇**	**27,2%**	**27,8%**	**32,2%Δ**	**27,6%∇**	**28,6%**	**27,4%**	**26,2%**	**27,1%**
UNweighted-n	*1.104*	*339*	*304*	*1.747*	*219*	*659*	*878*	*671*	*197*	*868*
Proportional-n	*1.046*	*374*	*314*	*1.735*	*221*	*653*	*874*	*664*	*196*	*860*
35 to 44 years (=code 3)	**23,5%Δ**	**22,6%**	**19,6%∇**	**22,6%**	**25,5%Δ**	**21,6%∇**	**22,5%**	**21,4%∇**	**26,8%Δ**	**22,7%**
UNweighted-n	*899*	*280*	*252*	*1.431*	*185*	*543*	*728*	*510*	*193*	*703*
Proportional-n	*852*	*328*	*226*	*1.406*	*175*	*512*	*687*	*518*	*201*	*719*

Column percentages	Healthcare, residential care, and social work *[▲▽: subgroup vs rest]*			Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months]			Feel emotionally exhausted by my work			
n: Numerator / N: Denominator	Health-care [58,2%]	Resi-dential care [23,3%]	Social work [18,6%]	Total	No [22,5%]	Yes [77,5%]	Total	Never/-rarely/-some-times [76,4%]	Often/-always [23,6%]	Total
45 to 55 years (=code 4)	**27,4%**	**27,1%**	**32,0%Δ**	**28,2%**	**18,9%▼**	**29,7%▲**	**27,3%**	**28,4%**	**30,3%**	**28,8%**
UNweighted-n	*1.058*	*389*	*357*	*1.804*	*166*	*718*	*884*	*704*	*213*	*917*
Proportional-n	*992*	*392*	*370*	*1.755*	*130*	*703*	*833*	*687*	*227*	*913*
56 years or more (=code 5)	**20,3%∇**	**24,5%Δ**	**21,2%**	**21,4%**	**23,4%**	**21,0%**	**21,6%**	**22,8%Δ**	**16,7%∇**	**21,3%**
UNweighted-n	*723*	*291*	*234*	*1.248*	*152*	*465*	*617*	*508*	*121*	*629*
Proportional-n	*735*	*355*	*245*	*1.335*	*161*	*498*	*658*	*551*	*125*	*677*
UNweighted-N	*3.784*	*1.299*	*1.147*	*6.230*	*722*	*2.385*	*3.107*	*2.393*	*724*	*3.117*
Proportional-N	*3.625*	*1.449*	*1.156*	*6.230*	*687*	*2.365*	*3.052*	*2.420*	*749*	*3.169*
[genderbis] **Gender**										
1 Men	**26,1%Δ**	**20,8%∇**	**23,6%**	**24,4%**	**34,5%▲**	**22,9%▼**	**25,5%**	**24,0%**	**20,6%**	**23,2%**
UNweighted-n	*943*	*257*	*255*	*1.455*	*221*	*505*	*726*	*575*	*153*	*728*
Proportional-n	*946*	*302*	*273*	*1.520*	*237*	*541*	*779*	*580*	*155*	*735*
2 Women	**73,9%∇**	**79,2%Δ**	**76,4%**	**75,6%**	**65,5%▼**	**77,1%▲**	**74,5%**	**76,0%**	**79,4%**	**76,8%**
UNweighted-n	*2.841*	*1.042*	*892*	*4.775*	*501*	*1.880*	*2.381*	*1.818*	*571*	*2.389*
Proportional-n	*2.680*	*1.147*	*883*	*4.710*	*449*	*1.824*	*2.273*	*1.840*	*595*	*2.435*
UNweighted-N	*3.784*	*1.299*	*1.147*	*6.230*	*722*	*2.385*	*3.107*	*2.393*	*724*	*3.117*
Proportional-N	*3.625*	*1.449*	*1.156*	*6.230*	*687*	*2.365*	*3.052*	*2.420*	*749*	*3.169*
[precar] **Precariousness: part-time or fixed-term job, and difficulty making ends meet or multiple jobs**										
0 No	**93,2%Δ**	**88,6%∇**	**87,5%∇**	**91,1%**	**88,4%**	**85,6%**	**86,2%**	**95,2%∇**	**97,3%Δ**	**95,7%**
UNweighted-n	*3.529*	*1.169*	*1.019*	*5.717*	*657*	*2.083*	*2.740*	*2.273*	*698*	*2.971*
Proportional-n	*3.368*	*1.283*	*1.010*	*5.662*	*607*	*2.024*	*2.631*	*2.296*	*726*	*3.022*
1 Yes	**6,8%∇**	**11,4%Δ**	**12,5%Δ**	**8,9%**	**11,6%**	**14,4%**	**13,8%**	**4,8%Δ**	**2,7%∇**	**4,3%**
UNweighted-n	*245*	*127*	*124*	*496*	*65*	*299*	*364*	*109*	*23*	*132*
Proportional-n	*247*	*165*	*145*	*556*	*80*	*340*	*420*	*116*	*20*	*137*
UNweighted-N	*3.774*	*1.296*	*1.143*	*6.213*	*722*	*2.382*	*3.104*	*2.382*	*721*	*3.103*

Column percentages n: Numerator / N: Denominator	Healthcare, residential care, and social work *[▲▽: subgroup vs rest]*			Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months]			Feel emotionally exhausted by my work			
	Health-care [58,2%]	Resi-dential care [23,3%]	Social work [18,6%]	Total	No [22,5%]	Yes [77,5%]	Total	Never/-rarely/-some-times [76,4%]	Often/-always [23,6%]	Total
Proportional-N	*3.615*	*1.448*	*1.155*	*6.218*	*687*	*2.364*	*3.051*	*2.412*	*747*	*3.158*
[ISCO_2_08bis] **Occupation** [ISCO 2008]										
1 Health professionals	**37,6%▲**	**9,6%▼**	**2,9%▼**	**24,6%**	**28,4%**	**24,7%**	**25,5%**	**22,8%▽**	**27,0%△**	**23,8%**
UNweighted-n	*1.693*	*150*	*43*	*1.886*	*221*	*719*	*940*	*695*	*248*	*943*
Proportional-n	*1.363*	*139*	*34*	*1.535*	*195*	*585*	*780*	*552*	*203*	*754*
2 Health associate professionals	**29,1%▲**	**13,3%▼**	**1,8%▼**	**20,4%**	**16,5%▽**	**22,2%△**	**20,9%**	**18,7%▽**	**23,7%△**	**19,9%**
UNweighted-n	*927*	*123*	*20*	*1.070*	*98*	*430*	*528*	*411*	*131*	*542*
Proportional-n	*1.055*	*193*	*21*	*1.269*	*113*	*525*	*638*	*453*	*178*	*631*
3 Other occupations	**33,3%▼**	**77,1%▲**	**95,3%▲**	**55,0%**	**55,1%**	**53,1%**	**53,5%**	**58,5%△**	**49,2%▽**	**56,3%**
UNweighted-n	*1.164*	*1.026*	*1.084*	*3.274*	*403*	*1.236*	*1.639*	*1.287*	*345*	*1.632*
Proportional-n	*1.208*	*1.116*	*1.101*	*3.425*	*378*	*1.256*	*1.634*	*1.415*	*369*	*1.784*
UNweighted-N	*3.784*	*1.299*	*1.147*	*6.230*	*722*	*2.385*	*3.107*	*2.393*	*724*	*3.117*
Proportional-N	*3.625*	*1.449*	*1.156*	*6.230*	*687*	*2.365*	*3.052*	*2.420*	*749*	*3.169*
[wp_size_rec_EU_def] **How many people work at your local workplace?**										
1−9	**22,7%**	**13,3%▼**	**33,5%▲**	**22,5%**	**24,2%**	**22,6%**	**23,0%**	**22,8%**	**20,2%**	**22,2%**
UNweighted-n	*883*	*176*	*377*	*1.436*	*183*	*539*	*722*	*564*	*150*	*714*
Proportional-n	*771*	*183*	*367*	*1.320*	*155*	*505*	*660*	*515*	*145*	*660*
10−49	**27,9%▼**	**39,2%△**	**39,2%△**	**32,7%**	**31,0%**	**33,3%**	**32,8%**	**34,5%△**	**26,6%▽**	**32,6%**
UNweighted-n	*1.106*	*486*	*463*	*2.055*	*227*	*810*	*1.037*	*798*	*218*	*1.016*
Proportional-n	*947*	*536*	*430*	*1.913*	*199*	*741*	*940*	*782*	*190*	*972*
50−249	**16,0%▼**	**38,6%▲**	**18,6%▽**	**21,8%**	**23,3%△**	**19,6%▽**	**20,5%**	**22,4%**	**24,1%**	**22,8%**
UNweighted-n	*674*	*441*	*174*	*1.289*	*153*	*463*	*616*	*497*	*173*	*670*
Proportional-n	*542*	*528*	*204*	*1.274*	*150*	*438*	*588*	*507*	*172*	*679*
250+	**33,4%▲**	**8,9%▼**	**8,7%▼**	**23,1%**	**21,5%**	**24,5%**	**23,8%**	**20,3%▼**	**29,0%▲**	**22,4%**
UNweighted-n	*932*	*119*	*74*	*1.125*	*125*	*454*	*579*	*398*	*148*	*546*

Column percentages	Healthcare, residential care, and social work *[▲▽: subgroup vs rest]*			Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months]			Feel emotionally exhausted by my work			
n: Numerator / N: Denominator	Health-care [58,2%]	Resi-dential care [23,3%]	Social work [18,6%]	Total	No [22,5%]	Yes [77,5%]	Total	Never/-rarely/-some-times [76,4%]	Often/-always [23,6%]	Total
Proportional-n	*1.134*	*122*	*95*	*1.350*	*138*	*545*	*683*	*460*	*207*	*667*
UNweighted-N	*3.595*	*1.222*	*1.088*	*5.905*	*688*	*2.266*	*2.954*	*2.257*	*689*	*2.946*
Proportional-N	*3.393*	*1.369*	*1.096*	*5.857*	*642*	*2.229*	*2.871*	*2.264*	*714*	*2.978*

Note. Percentages are column percentages, and are tested with the Pearson χ^2-test (horizontal comparisons). Contrast: subgroup vs rest. ▲ and ▼: p<0,05 and Cohen's d≥0,20. ∆ and ∇: p<0,05 but Cohen's d<0,20.

MSD-Step 1. The relation between each explanatory variable or determinant and *'[MSD_Symptoms] Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs'* was examined in 12 weighted univariate multilevel logistic regression analyses, with adjustments for country and subsector. Significant determinants (p<5%) have been highlighted in all the following tables. In each analysis, both with dichotomous determinants and with determinants having three or more categories, the *final* category (but with the *lowest* code), functions as the reference category. Each of the other categories has been compared with this reference category. In this reference category, the *'Exp(Coefficient)'* or the *Odds Ratio* is by definition 1.[44]

[44] Unfortunately, 'GenLinMixed' in SPSS version 28 does not present all the variable and value labels, but these can be found in the first Table.

Table A 2: Association between MSD symptoms and requested to work at short notice; results of the univariate multilevel logistic regression analysis

Fixed Coefficients[a]										
MSD_Symptoms	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval For Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Yes	Intercept	1,201	0,0998	12,038	0,000	1,005	1,397	3,323	2,732	4,041
	Requested to work at short notice	0,173	0,1466	1,182	0,237	−0,114	0,461	1,189	0,892	1,586
	shortnoticebis=0	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months].

b. This coefficient is set to zero because it is redundant.

Table A 3: Association between MSD symptoms and handling chemical products; results of the univariate multilevel logistic regression analysis

Fixed Coefficients[a]										
MSD_Symptoms	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Yes	Intercept	0,939	0,0735	12,772	0,000	0,795	1,083	2,557	2,214	2,954
	Handling chemical products	0,705	0,0928	7,601	0,000	0,523	0,887	2,024	1,688	2,428
	chemicalsbis=0	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months].

b. This coefficient is set to zero because it is redundant.

Table A 4: Association between MSD symptoms and physical workload; results of the univariate multilevel logistic regression analysis

MSD_Symptoms	Model Term	Fixed Coefficients[a] Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Yes	Intercept	0,301	0,1292	2,332	0,020	0,048	0,555	1,352	1,049	1,741
	Physical workload	1,110	0,1294	8,576	0,000	0,856	1,363	3,033	2,353	3,909
	Physical_Workload=0	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months].

b. This coefficient is set to zero because it is redundant.

Table A 5: Association between MSD symptoms and discrimination; results of the univariate multilevel logistic regression analysis

Fixed Coefficients[a]										
MSD_Symptoms	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Yes	Intercept	1,112	0,0690	16,125	0,000	0,977	1,247	3,041	2,656	3,481
	Discrimination	0,782	0,1436	5,447	0,000	0,501	1,064	2,187	1,650	2,898
	discriminationbis=0	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months].

b. This coefficient is set to zero because it is redundant.

Table A 6: Association between MSD symptoms and violence, harassment and bullying; results of the univariate multilevel logistic regression analysis

Fixed Coefficients[a]										
MSD_Symptoms	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Yes	Intercept	1,002	0,0773	12,965	0,000	0,851	1,154	2,724	2,341	3,170
	Violence, harassment or bullying	1,041	0,1458	7,137	0,000	0,755	1,327	2,832	2,128	3,770
	Violence_Harassment=0	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months].

b. This coefficient is set to zero because it is redundant.

Table A 7: Association between MSD symptoms and work intensity; results of the univariate multilevel logistic regression analysis

Fixed Coefficients[a]										
MSD_Symptoms	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Yes	Intercept	1,011	0,0743	13,615	0,000	0,866	1,157	2,750	2,377	3,181
	Work intensity	0,557	0,0940	5,928	0,000	0,373	0,742	1,746	1,452	2,100
	workintensitybis2=0	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months].

b. This coefficient is set to zero because it is redundant.

Table A 8: Association between MSD symptoms and task autonomy; results of the univariate multilevel logistic regression analysis

Fixed Coefficients[a]										
MSD_Symptoms	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Yes	Intercept	0,840	0,1106	7,598	0,000	0,623	1,057	2,317	1,865	2,879
	Task autonomy[45]	0,677	0,1179	5,737	0,000	0,445	0,908	1,967	1,561	2,479
	taskautonomybis2=0	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months].

b. This coefficient is set to zero because it is redundant.

[45] Note that *'taskautonomybis2'* is recoded in such a way that it reflects *'lack of autonomy'*: [taskautonomybis2] *'Task autonomy (deciding on order of tasks, methods and/or speed or rate of work)', 0 = 'Often/always', 1 = 'Never/rarely/sometimes'.*

Table A 9: Association between MSD symptoms and age; results of the univariate multilevel logistic regression analysis

Fixed Coefficients[a]										
MSD_Symptoms	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Yes	Intercept	1,051	0,0970	10,831	0,000	0,861	1,241	2,861	2,365	3,461
	56 years or more	0,040	0,1211	0,331	0,741	−0,197	0,278	1,041	0,821	1,320
	45-55 years	0,601	0,1247	4,818	0,000	0,356	0,845	1,823	1,428	2,328
	35-44 years	−0,008	0,1185	−0,069	0,945	−0,240	0,224	0,992	0,786	1,251
	16-34 years	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months]

b. This coefficient is set to zero because it is redundant.

Table A 10: Association between MSD symptoms and gender; results of the univariate multilevel logistic regression analysis

Fixed Coefficients[a]										
MSD_Symptoms	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Yes	Intercept	0,786	0,0971	8,092	0,000	0,595	0,976	2,194	1,813	2,654
	women	0,586	0,0956	6,132	0,000	0,399	0,774	1,797	1,490	2,168
	men	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months].

b. This coefficient is set to zero because it is redundant.

Table A 11: Association between MSD symptoms and precariousness; results of the univariate multilevel logistic regression analysis

Fixed Coefficients[a]										
MSD_Symptoms	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Yes	Intercept	1,180	0,0721	16,379	0,000	1,039	1,321	3,255	2,826	3,749
	Precariousness	0,243	0,1349	1,804	0,071	−0,021	0,508	1,276	0,979	1,662
	precar=0	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months].

b. This coefficient is set to zero because it is redundant.

Table A 12: Association between MSD symptoms and occupation; results of the univariate multilevel logistic regression analysis

Fixed Coefficients[a]										
MSD_Symptoms	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Yes	Intercept	1,089	0,1053	10,340	0,000	0,882	1,295	2,971	2,417	3,653
	Health professionals	0,094	0,1113	0,844	0,399	−0,124	0,312	1,098	0,883	1,366
	Health associate professionals	0,474	0,1352	3,504	0,000	0,209	0,739	1,606	1,232	2,093
	Other occupations	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months].

b. This coefficient is set to zero because it is redundant.

Table A 13: Association between MSD symptoms and WP size (# employees); results of the univariate multilevel logistic regression analysis

Fixed Coefficients[a]										
MSD_Symptoms	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Yes	Intercept	1,148	0,1140	10,074	0,000	0,925	1,372	3,152	2,521	3,942
	Workplace size (# employees)									
	250+	0,229	0,1367	1,677	0,094	−0,039	0,497	1,258	0,962	1,644
	50-249	−0,122	0,1362	−0,895	0,371	−0,389	0,145	0,885	0,678	1,156
	10-49	0,122	0,1243	0,979	0,328	−0,122	0,365	1,129	0,885	1,441
	1-9	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months].

b. This coefficient is set to zero because it is redundant.

MSD-Step 2. In practice, *'chemicalsbis', 'Physical_Workload', 'discriminationbis', 'Violence_Harassment', 'workintensitybis2', 'taskautonomybis2', 'age_groupsbis', 'genderbis', 'ISCO_2_08bis',* and *'wp_size_rec_EU_def'* were significant in Step 1, and there were analysed for significant determinants multivariately in Step 2. Note, however, that this analysis could only be done for the subgroup of cases who were not missing on any of the involved dependent and/or independent variables ($N_{Proportional}$=998; $N_{Unweighted}$=1.028).[46]

[46] Although the proportional weighting variable has been rescaled to an average of one *in the total group*, there may still be (small) differences between the unweighted and the proportionally weighted number of cases, when cases that do not participate in a particular analysis due to missing values, have a relatively low or high average proportional weight.

Table A 14: Associations between variables that were significantly associated with MSD symptoms at Step 1 and MSD symptoms; results of the multivariate multilevel logistic regression analysis

MSD_Symptoms	Model Term	Fixed Coefficients[a] Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Yes	Intercept	−1,192	0,3416	−3,490	0,001	−1,863	−0,522	0,304	0,155	0,593
	Handling chemical products	0,085	0,1887	0,452	0,651	−0,285	0,456	1,089	0,752	1,577
	chemicalsbis=0	0[b]	.	.	.	.	.	.	.	.
	Physical workload	0,777	0,2361	3,289	0,001	0,313	1,240	2,174	1,368	3,456
	Physical_Workload=0	0[b]	.	.	.	.	.	.	.	.
	Discrimination	0,962	0,3681	2,613	0,009	0,239	1,684	2,616	1,271	5,388
	discriminationbis=0	0[b]	.	.	.	.	.	.	.	.
	Violence, harassment or bullying	1,048	0,2643	3,964	0,000	0,529	1,566	2,851	1,697	4,789
	Violence_Harassment=0	0[b]	.	.	.	.	.	.	.	.
	Work intensity	0,340	0,1889	1,801	0,072	−0,031	0,711	1,405	0,970	2,036
	workintensitybis2=0	0[b]	.	.	.	.	.	.	.	.
	Task autonomy	0,446	0,1776	2,510	0,012	0,097	0,794	1,562	1,102	2,213
	taskautonomybis2=0	0[b]	.	.	.	.	.	.	.	.

MSD_Symptoms	Model Term	Fixed Coefficients[a] Coefficient	Std. Error	t	Sig.	95% Confidence Interval Lower	Upper	Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient) Lower	Upper
	56 years or more	0,377	0,2589	1,454	0,146	−0,132	0,885	1,457	0,877	2,422
	45-55 years	0,402	0,2341	1,716	0,086	−0,058	0,861	1,494	0,944	2,366
	35-44 years	−0,154	0,2292	−0,673	0,501	−0,604	0,296	0,857	0,547	1,344
	16-34 years	0[b]	.	.	.	.	.	.	.	.
	women	0,681	0,1842	3,699	0,000	0,320	1,043	1,977	1,377	2,837
	men	0[b]	.	.	.	.	.	.	.	.
	Health professionals	0,517	0,2106	2,453	0,014	0,103	0,930	1,676	1,109	2,534
	Health associate professionals	1,097	0,2951	3,718	0,000	0,518	1,676	2,996	1,679	5,346
	Other occupations	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months].

b. This coefficient is set to zero because it is redundant.

MSD-Step 3. Finally, *'shortnoticebis', 'precar',* and *'wp_size_rec_EU_def'* were added to the model. Note, however, that this analysis could only be done for the subgroup of cases that were not missing any of the involved dependent and/or independent variables ($N_{Proportional}$=933; $N_{Unweighted}$=972).

Table A 15: Associations between all variables under study and MSD symptoms; results of the multivariate multilevel logistic regression analysis

MSD_Symptoms	Model Term	Fixed Coefficients[a]								
		Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Yes	Intercept	−0,976	0,3934	−2,480	0,013	−1,748	−0,204	0,377	0,174	0,816
	Requested to work at short notice	0,220	0,2392	0,918	0,359	−0,250	0,689	1,245	0,779	1,992
	shortnoticebis=0	0[b]	.	.	.	.	.	.	.	.
	Handling chemical products	−0,020	0,2013	−0,100	0,920	−0,415	0,375	0,980	0,660	1,455
	chemicalsbis=0	0[b]	.	.	.	.	.	.	.	.
	Physical workload	0,558	0,2524	2,212	0,027	0,063	1,054	1,748	1,065	2,868
	Physical_Workload=0	0[b]	.	.	.	.	.	.	.	.
	Discrimination	1,126	0,4016	2,805	0,005	0,338	1,914	3,084	1,403	6,783
	discriminationbis=0	0[b]	.	.	.	.	.	.	.	.
	Violence, harassment or bullying	1,014	0,2715	3,733	0,000	0,481	1,547	2,756	1,617	4,695
	Violence_Harassment=0	0[b]	.	.	.	.	.	.	.	.
	Work intensity	0,234	0,2014	1,164	0,245	−0,161	0,630	1,264	0,851	1,877
	workintensitybis2=0	0[b]	.	.	.	.	.	.	.	.

MSD_Symptoms	Model Term	Fixed Coefficients[a]								
		Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
	Task autonomy	0,429	0,1860	2,307	0,021	0,064	0,794	1,536	1,066	2,212
	taskautonomybis2=0	0[b]	.	.	.	.	.	.	.	.
	56 years or more	0,134	0,2751	0,488	0,626	−0,406	0,674	1,144	0,667	1,962
	45-55 years	0,315	0,2512	1,255	0,210	−0,178	0,808	1,370	0,837	2,244
	35-44 years	−0,345	0,2434	−1,419	0,156	−0,823	0,132	0,708	0,439	1,141
	16-34 years	0[b]	.	.	.	.	.	.	.	.
	women	0,716	0,1941	3,689	0,000	0,335	1,097	2,046	1,398	2,995
	men	0[b]	.	.	.	.	.	.	.	.
	Precariousness	0,021	0,2730	0,078	0,938	−0,514	0,557	1,022	0,598	1,746
	precar=0	0[b]	.	.	.	.	.	.	.	.
	Health professionals	0,395	0,2247	1,757	0,079	−0,046	0,836	1,484	0,955	2,306
	Health associate professionals	1,141	0,3149	3,624	0,000	0,523	1,759	3,131	1,688	5,809
	Other occupations	0[b]	.	.	.	.	.	.	.	.
	Workplace size (# employees)									
	250+	0,270	0,2576	1,047	0,295	−0,236	0,775	1,310	0,790	2,171

MSD_Symptoms	Model Term	Fixed Coefficients[a] Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
	50-249	0,140	0,2667	0,525	0,600	−0,383	0,664	1,150	0,682	1,942
	10-49	0,202	0,2410	0,839	0,401	−0,271	0,675	1,224	0,763	1,965
	1-9	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Backache and/or muscular pain in shoulders and/or neck and/or upper limbs and/or lower limbs [Last 12 months].

b. This coefficient is set to zero because it is redundant.

Emotional exhaustion-Step 1.

Table A 16: Association between emotional exhaustion and requested to work at short notice; results of the univariate multilevel logistic regression analysis

Fixed Coefficients[a]										
Emotional Exhaustion	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Often/always	Intercept	−1,467	0,1022	−14,352	0,000	−1,668	−1,267	0,231	0,189	0,282
	Requested to work at short notice	0,588	0,1168	5,035	0,000	0,359	0,817	1,800	1,432	2,264
	shortnoticebis=0	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Feel emotionally exhausted by my work.

b. This coefficient is set to zero because it is redundant.

Table A 17: Association between emotional exhaustion and handling chemical products; results of the univariate multilevel logistic regression analysis

Fixed Coefficients[a]										
Emotional Exhaustion	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
	Intercept	−1,448	0,0989	−14,633	0,000	−1,642	−1,254	0,235	0,194	0,285
1 Often/always	Handling chemical products	0,400	0,0877	4,566	0,000	0,228	0,572	1,492	1,257	1,772
	chemicalsbis=0	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Feel emotionally exhausted by my work.

b. This coefficient is set to zero because it is redundant.

Table A 18: Association between emotional exhaustion and physical workload; results of the univariate multilevel logistic regression analysis

Fixed Coefficients[a]										
Emotional Exhaustion	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Often/always	Intercept	−1,911	0,2126	−8,992	0,000	−2,328	−1,495	0,148	0,097	0,224
	Physical workload	0,772	0,1992	3,877	0,000	0,382	1,163	2,165	1,465	3,200
	Physical_Workload=0	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Feel emotionally exhausted by my work.

b. This coefficient is set to zero because it is redundant.

Table A 19: Association between emotional exhaustion and discrimination; results of the univariate multilevel logistic regression analysis

Fixed Coefficients[a]										
Emotional Exhaustion	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Often/always	Intercept	−1,497	0,0965	−15,508	0,000	−1,687	−1,308	0,224	0,185	0,270
	Discrimination	1,319	0,1138	11,589	0,000	1,096	1,542	3,740	2,992	4,676
	discriminationbis=0	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Feel emotionally exhausted by my work.

b. This coefficient is set to zero because it is redundant.

Table A 20: Association between emotional exhaustion and violence, harassment or bullying; results of the univariate multilevel logistic regression analysis

Fixed Coefficients[a]										
Emotional Exhaustion	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
	Intercept	−1,668	0,1191	−13,999	0,000	−1,902	−1,434	0,189	0,149	0,238
1 Often/always	Violence, harassment or bullying	1,340	0,1315	10,187	0,000	1,082	1,598	3,819	2,950	4,943
	Violence_Harassment=0	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Feel emotionally exhausted by my work.

b. This coefficient is set to zero because it is redundant.

Table A 21: Association between emotional exhaustion and work intensity; results of the univariate multilevel logistic regression analysis

Fixed Coefficients[a]										
Emotional Exhaustion	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Often/always	Intercept	−1,770	0,1036	−17,080	0,000	−1,974	−1,567	0,170	0,139	0,209
	Work intensity	1,139	0,0907	12,550	0,000	0,961	1,317	3,123	2,614	3,731
	workintensitybis2=0	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Feel emotionally exhausted by my work.

b. This coefficient is set to zero because it is redundant.

Table A 22: Association between emotional exhaustion and task autonomy; results of the univariate multilevel logistic regression analysis

Fixed Coefficients[a]										
Emotional Exhaustion	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
	Intercept	−1,561	0,1191	−13,108	0,000	−1,795	−1,328	0,210	0,166	0,265
1 Often/always	Task autonomy	0,421	0,1063	3,966	0,000	0,213	0,630	1,524	1,237	1,877
	taskautonomybis2=0	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Feel emotionally exhausted by my work.

b. This coefficient is set to zero because it is redundant.

Table A 23: Association between emotional exhaustion and age; results of the univariate multilevel logistic regression analysis

Fixed Coefficients[a]										
Emotional Exhaustion	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Often/always	Intercept	−1,280	0,1170	−10,941	0,000	−1,510	−1,051	0,278	0,221	0,350
	56 years or more	−0,295	0,1320	−2,238	0,025	−0,554	−0,037	0,744	0,575	0,964
	45-55 years	0,061	0,1143	0,533	0,594	−0,163	0,285	1,063	0,849	1,330
	35-44 years	0,226	0,1192	1,898	0,058	−0,007	0,460	1,254	0,993	1,584
	16-34 years	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Feel emotionally exhausted by my work.

b. This coefficient is set to zero because it is redundant.

Table A 24: Association between emotional exhaustion and gender; results of the univariate multilevel logistic regression analysis

Emotional Exhaustion	Model Term	Fixed Coefficients[a]								
		Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Often/always	Intercept	−1,385	0,1225	−11,309	0,000	−1,626	−1,145	0,250	0,197	0,318
	women	0,156	0,1049	1,487	0,137	−0,050	0,362	1,169	0,951	1,436
	men	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Feel emotionally exhausted by my work.

b. This coefficient is set to zero because it is redundant.

Table A 25: Association between emotional exhaustion and precariousness; results of the univariate multilevel logistic regression analysis

Emotional Exhaustion	Model Term	Fixed Coefficients[a] Coefficient	Std. Error	t	Sig.	95% Confidence Interval Lower	95% Confidence Interval Upper	Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient) Lower	95% Confidence Interval for Exp(Coefficient) Upper
1 Often/always	Intercept	−1,249	0,0913	−13,676	0,000	−1,428	−1,070	0,287	0,240	0,343
	Precariousness	−0,462	0,2504	−1,844	0,065	−0,953	0,029	0,630	0,386	1,030
	precar=0	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Feel emotionally exhausted by my work.

b. This coefficient is set to zero because it is redundant.

Table A 26: Association between emotional exhaustion and occupation; results of the univariate multilevel logistic regression analysis

Fixed Coefficients[a]										
Emotional Exhaustion	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Often/always	Intercept	−1,094	0,1227	−8,916	0,000	−1,334	−0,853	0,335	0,263	0,426
	Health professionals	−0,280	0,1124	−2,492	0,013	−0,500	−0,060	0,756	0,606	0,942
	Health associate professionals	0,019	0,1263	0,150	0,880	−0,229	0,267	1,019	0,796	1,306
	Other occupations	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Feel emotionally exhausted by my work.

b. This coefficient is set to zero because it is redundant.

Table A 27: Association between emotional exhaustion and workplace size (# employees); results of the univariate multilevel logistic regression analysis

Fixed Coefficients[a]										
Emotional Exhaustion	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Often/always	Intercept	−1,310	0,1261	−10,394	0,000	−1,558	−1,063	0,270	0,211	0,345
	workplace size (# employees)									
	250+	0,441	0,1346	3,279	0,001	0,178	0,705	1,555	1,194	2,025
	50-249	0,165	0,1384	1,195	0,232	−0,106	0,437	1,180	0,899	1,548
	10-49	−0,163	0,1283	−1,268	0,205	−0,414	0,089	0,850	0,661	1,093
	1-9	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Feel emotionally exhausted by my work.

b. This coefficient is set to zero because it is redundant.

Emotional exhaustion-Step 2. In practice, only *'genderbis'* and *'precar'* were *not* significant in Step 1, and the remaining significant determinants were analysed multivariately in Step 2. Note, however, that this analysis could only be done for the subgroup of cases that were not missing any of the involved dependent and/or independent variables ($N_{Proportional}$=943; $N_{Unweighted}$=904).

Table A 28: Associations between variables that were significantly associated with emotional exhaustion at Step 1 and emotional exhaustion; results of the multivariate multilevel logistic regression analysis

Fixed Coefficients[a]										
Emotional Exhaustion	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Often/always	Intercept	−2,207	0,4617	−4,781	0,000	−3,114	−1,301	0,110	0,044	0,272
	Requested to work at short notice	−0,204	0,2304	−0,887	0,375	−0,657	0,248	0,815	0,519	1,281
	shortnoticebis=0	0[b]	.	.	.	.	.	.	.	.
	Handling chemical products	−0,312	0,2063	−1,510	0,131	−0,717	0,093	0,732	0,488	1,098
	chemicalsbis=0	0[b]	.	.	.	.	.	.	.	.
	Physical workload	0,511	0,3375	1,515	0,130	−0,151	1,174	1,667	0,860	3,234
	Physical_Workload=0	0[b]	.	.	.	.	.	.	.	.
	Discrimination	1,418	0,2595	5,465	0,000	0,909	1,927	4,129	2,481	6,870
	discriminationbis=0	0[b]	.	.	.	.	.	.	.	.
	Violence, harassment or bullying	0,983	0,2229	4,408	0,000	0,545	1,420	2,671	1,725	4,138
	Violence_Harassment=0	0[b]	.	.	.	.	.	.	.	.
	Work intensity	0,953	0,2004	4,755	0,000	0,560	1,346	2,593	1,750	3,842

Emotional Exhaustion	Fixed Coefficients[a]								
	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
	workintensitybis2=0	0[b]	.	.	.	.	.	.	.	.
	Task autonomy	−0,181	0,2022	−0,896	0,371	−0,578	0,216	0,834	0,561	1,241
	taskautonomybis2=0	0[b]	.	.	.	.	.	.	.	.
	56 years or more	0,619	0,2817	2,197	0,028	0,066	1,172	1,857	1,068	3,227
	45-55 years	0,116	0,2682	0,432	0,666	−0,410	0,642	1,123	0,663	1,901
	35-44 years	0,684	0,2771	2,469	0,014	0,140	1,228	1,982	1,151	3,415
	16-34 years	0[b]	.	.	.	.	.	.	.	.
	Health professionals	−0,574	0,2512	−2,285	0,023	−1,067	−0,081	0,563	0,344	0,922
	Health associate professionals	−0,414	0,2667	−1,554	0,121	−0,938	0,109	0,661	0,391	1,115
	Other occupations	0[b]	.	.	.	.	.	.	.	.
	Workplace size (# employees)									
	250+	−0,106	0,2757	−0,384	0,701	−0,647	0,435	0,900	0,524	1,545
	50-249	−0,381	0,2925	−1,302	0,193	−0,955	0,193	0,683	0,385	1,213

Emotional Exhaustion	Fixed Coefficients[a]								
	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
	10-49	−0,853	0,2771	−3,080	0,002	−1,397	−0,309	0,426	0,247	0,734
	1-9	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial.

Link function: Generalized logit.

a. Target: Feel emotionally exhausted by my work.

b. This coefficient is set to zero because it is redundant.

Emotional exhaustion-Step 3. Finally, *'genderbis'* and *'precar'* were also added to the model. Note, however, that this analysis could only be done for the subgroup of cases that were not missing any of the involved dependent and/or independent variables ($N_{Proportional}$=942; $N_{Unweighted}$=901).

Table A 29: Associations between all variables under study and emotional exhaustion; results of the multivariate multilevel logistic regression analysis

Fixed Coefficients[a]										
Emotional Exhaustion	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
1 Often/always	Intercept	−2,440	0,5080	−4,804	0,000	−3,437	−1,443	0,087	0,032	0,236
	Requested to work at short notice	−0,254	0,2340	−1,087	0,277	−0,714	0,205	0,775	0,490	1,227
	shortnoticebis=0	0[b]	.	.	.	.	.	.	.	.
	Handling chemical products	−0,332	0,2095	−1,585	0,113	−0,743	0,079	0,717	0,475	1,082
	chemicalsbis=0	0[b]	.	.	.	.	.	.	.	.
	Physical workload	0,576	0,3422	1,683	0,093	−0,096	1,247	1,779	0,909	3,481
	Physical_Workload=0	0[b]	.	.	.	.	.	.	.	.
	Discrimination	1,413	0,2620	5,394	0,000	0,899	1,928	4,110	2,458	6,873
	discriminationbis=0	0[b]	.	.	.	.	.	.	.	.
	Violence, harassment or bullying	1,001	0,2260	4,431	0,000	0,558	1,445	2,722	1,747	4,241
	Violence_Harassment=0	0[b]	.	.	.	.	.	.	.	.
	Work intensity	0,980	0,2031	4,826	0,000	0,582	1,379	2,665	1,789	3,970

Emotional Exhaustion	Fixed Coefficients[a]								
	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
	workintensitybis2=0	0[b]	.	.	.	.	.	.	.	.
	Task autonomy	−0,212	0,2048	−1,036	0,300	−0,614	0,190	0,809	0,541	1,209
	taskautonomybis2=0	0[b]	.	.	.	.	.	.	.	.
	56 years or more	0,565	0,2835	1,994	0,046	0,009	1,122	1,760	1,009	3,070
	45-55 years	0,074	0,2711	0,274	0,785	−0,458	0,606	1,077	0,633	1,834
	35-44 years	0,619	0,2800	2,211	0,027	0,070	1,169	1,857	1,072	3,218
	16-34 years	0[b]	.	.	.	.	.	.	.	.
	women	0,405	0,2244	1,804	0,072	−0,036	0,845	1,499	0,965	2,329
	men	0[b]	.	.	.	.	.	.	.	.
	Precariousness	−0,849	0,5221	−1,626	0,104	−1,873	0,176	0,428	0,154	1,192
	precar=0	0[b]	.	.	.	.	.	.	.	.
	Health professionals	−0,585	0,2533	−2,309	0,021	−1,082	−0,088	0,557	0,339	0,916
	Health associate professionals	−0,474	0,2695	−1,759	0,079	−1,003	0,055	0,622	0,367	1,056
	Other occupations	0[b]	.	.	.	.	.	.	.	.

Emotional Exhaustion	Fixed Coefficients[a]								
	Model Term	Coefficient	Std. Error	t	Sig.	95% Confidence Interval		Exp(Coefficient)	95% Confidence Interval for Exp(Coefficient)	
						Lower	Upper		Lower	Upper
	Workplace size (# employees)									
	250+	−0,128	0,2806	−0,456	0,648	−0,679	0,423	0,880	0,507	1,526
	50-249	−0,425	0,2957	−1,438	0,151	−1,006	0,155	0,654	0,366	1,168
	10-49	−0,897	0,2818	−3,184	0,002	−1,450	−0,344	eurofoundeurofound0,408	0,234	0,709
	1-9	0[b]	.	.	.	.	.	.	.	.

Probability distribution: Multinomial

Link function: Generalized logit

a. Target: Feel emotionally exhausted by my work

b. This coefficient is set to zero because it is redundant.

B. Methodological appendix 2 — Regression analysis of ESENER on factors impacting OSH management

Overview

Which research question will be answered with this analysis?

1. What are the **technical, economic, social, and organisational** factors that have a correlation with OSH management in each subsector of the HeSCare sector?
2. Are OSH measures aimed at psychosocial risks correlated with different factors than other forms of OSH management?
3. How have relevant technical, economic, social, and organisational factors changed in the past years?

Firstly, a description of the analysis that was performed to answer the first two research questions are provided, followed by the results. The section then contains the methodology used to answer research question 3 and the results.[47]

Research question 1 and 2

Which data were used?

This analysis is based on data from all establishments from EU-27 Member States that participated in the ESENER-19 survey conducted in 2019. The sample for the total EU-27 economy includes 37460 observations. In addition to the total economy, subsamples representing each subsector of the HeSCare (NACE-Q) sector were analysed. These subsamples include 1581 observations from subsector Q86 Health care, 967 from subsector Q87 Residential care and 1416 from subsector Q88 Social work.

Which dependent variables were used?

The previous study by EU-OSHA on evidence from ESENER in the HeSCare sector[48] has identified psychosocial risks as one of the main OSH risks in this sector. As a result, it is important that establishments in this sector also take OSH measures aimed specifically at these risks. The current analysis investigates if the intensity of OSH measures aimed at psychosocial risks is associated with different technical, economic, social and organisational factors other than the intensity of other forms of OSH management.

To do this, two dependent variables have been constructed. The first is a general indicator of OSH management, which includes items on OSH management practices that are not specifically aimed at psychosocial risks. The second indicator includes all OSH management practices that are aimed at psychosocial risks. Below there is a description on the construction of the first indicator.

OSH-gen: attention for general OSH management

The methodology for constructing this indicator is similar to what was used in a previous study for EU-OSHA on the Transportation and storage sector.[49] Following that methodology, several categories of items were excluded from the analysis:

- Questions concerned with the nature of OSH management practices or how they are carried out, and not whether they are carried out (for instance, question Q251 whether workplace risk assessments are conducted by internal staff or external service providers).
- Questions that have only been asked to establishments with at least 20 employees (for example, question Q162 whether health and safety issues are discussed at the top level of

[47] For reference, the ESENER-19 questionnaire can be found here: https://oshwiki.osha.europa.eu/sites/oshwiki/files/2022-09/Master_questionnaire_2019.pdf

[48] Human health and social work activities – evidence from the European Survey of Enterprises on New and Emerging Risks (ESENER) | Safety and health at work EU-OSHA (europa.eu)

[49] Transportation and storage activities – Evidence from the European Survey of Enterprises on New and Emerging Risks (ESENER) | Safety and health at work EU-OSHA (europa.eu)

management). As in the Transportation and storage sector, these establishments also form a minority in the HeSCare sector.

- Questions that have only been asked to establishments where specific risks were identified (for example, question Q202_1 has only been answered by establishments that identified lifting or moving people or heavy loads as a risk factor). Although this risk factor is present in many establishments in the HeSCare sector, excluding all establishments where it is not present from the analysis would result in the loss of too many observations and a non-representative sample.

This leaves 31 variables from the ESENER 2019-dataset that represent the application of general OSH management practices by establishments. These variables were used to construct an indicator representing the attention establishments have for general (not psychosocial) OSH management. Table B 1 lists the items that were included in this indicator. Each variable was recoded into dummy variables coded as 0 (no) or 1 (yes) so each question gets the same weight.

The “attention for general OSH management” indicator (OSH-gen) is calculated as the average of these variables, calculated over all valid answers. This means that if an establishment has not answered all of the 31 questions (which applies to the majority of establishments), OSH-gen is based on the answers of the subset of questions that have been answered (otherwise, the regression analysis would be restricted to the subset of enterprises that answered all of the 31 questions, in which case the results would not be representative for the whole population anymore). To control for the fact that the average score on OSH-gen may be different for establishments that did not answer some of the 31 questions, the actions described below were taken.

Establishments that answered less than 26 of the 31 questions are excluded from the estimation procedure. This is only a small group of establishments (less than 3% in the HeSCare sector and less than 3% in the total economy). The regression models include two dummy variables that indicate whether establishments did not answer some of the questions (validcount_dummy_29, indicating if 29 or 30 questions have been answered, and validcount_dummy_26, indicating if 26 to 28 questions have been answered).

Table B 1: Variables from the ESENER-19 dataset used to construct the indicator OSH-gen, representing the attention establishments have for general (not psychosocial) OSH practices

Variables			
Q150	Q157_1	Q252_1	Q357
Q151_1	Q157_2	Q252_3	Q358_1
Q151_3	Q157_3	Q252_4	Q358_2
Q151_4	Q157_4	Q252_6	Q358_3
Q151_5	Q202_3	Q311	Q358_4
Q152	Q202_4	Q355_1	Q358_5
Q155	Q202_5	Q355_3	Q358_6
Q158	Q250	Q355_5	

Source: Panteia based on ESENER-19

The resulting indicator, which ranges from 0 to 1, has a (weighted) average score of 0.59 in the total EU-27 HeSCare sector. In the total EU-27 economy, this average is slightly lower: 0.53. The (weighted) average score is clearly related to establishment size, ranging from 0.53 in HeSCare establishments with 5-9 employees to .75 in HeSCare establishments with 250 or more employees. This

difference between size classes is even larger in the total economy, ranging from 0.48 in the smallest establishments to 0.75 in the largest.

In the HeSCare sector, the weighted average score also differs between the three subsectors. Subsector Q87 (Residential care) has the highest average score of 0.64, subsector Q86 (Healthcare) the lowest at 0.57. The average score in subsector Q88 (Social work) is 0.59. This was to be expected given the differences between subsectors in scores on individual items discussed in the main text.

OSH-pr: attention for OSH management aimed at psychosocial risks ("attention for psychosocial OSH management")

In addition to the indicator for general OSH management described above, an indicator for the specific attention establishments have for OSH measures aimed at mitigating psychosocial risks was also constructed.

The methodology for constructing this indicator, named OSH-pr, is very similar to that of OSH-gen. Again, any items that were only asked to a subset of respondents were excluded and items, were only included that address the occurrence of a particular OSH measure in an establishment, rather than the way it is carried out. This leads to the selection of 8 variables, listed in Table B 2. Again, each item was recoded into a dummy variable and the average score over all valid answers calculated.

Only establishments that provided a valid answer to at least 6 of the 8 underlying questions were included in the model estimations. This includes over 98% of all establishments in both the HeSCare sector and the total economy. In addition, dummy variables were added to all models that indicate whether establishments provided only 6 or 7 valid answers instead of all 8.

Table B 2: Variables from the ESENER-19 dataset used to construct the indicator OSH-pr, representing the attention establishments have for psychosocial OSH management practices

Variables	
Q151_2	Q304_2
Q252_5	Q304_3
Q303_all	Q304_4
Q304_1	Q304_5

Source: Panteia based on ESENER-19

The weighted average score on this indicator is 0.57 in the HeSCare sector and 0.41 in the total EU-27 economy. This suggests that there is generally more attention to psychosocial OSH management in the HeSCare sector than in other sectors. There are fewer establishments in the HeSCare sector that have not implemented any of the OSH measures addressing psychosocial risks: 2.4% compared to 9.1% in the total economy.

In both the HeSCare sector and the total economy, average score increases with establishment size, ranging from an average of 0.52 in HeSCare establishments with 5-9 employees to 0.67 in establishments with 250 or more employees. For the total economy, this ranges from 0.37 in the smallest size class to 0.61 in the largest.

The difference between subsectors of the HeSCare sector is even more pronounced for OSH-pr than for OSH-gen. The residential care subsector (Q87) has the highest weighted average of 0.65. The healthcare sector (Q86) scores much lower at 0.51. The social work subsector (Q88) is once again in between, with a weighted average of 0.60.

Correlation between general and psychosocial OSH management

The first question to be answered about these two forms of OSH management, is whether they are indeed two separate forms. If the same establishments that have a high concern for general OSH management also have a high concern for the management of psychosocial risks, and vice versa, it

would not be useful to analyse them separately. However, the correlation between both outcome indicators is between 0.54 and 0.65 in all subsectors as well as the total economy[50]. This means that an establishment's concern for general OSH management does not always predict its level of concern for psychosocial OSH management, and each outcome may indeed be influenced by different underlying factors.

Which explanatory variables were included?

The aim of this analysis is to investigate how OSH management differs between establishments as a result of differences in technical, economic, social and organisational characteristics. To answer this question, a wide range of characteristics measured by the ESENER-19 survey were included in our models. Again, items that were not asked of all establishments in the survey were excluded. Including them would result in the loss of too many observations and a sample that was no longer representative of the population. The characteristics that were measured for all establishments are the following:

Table B 3: Technical, economic, social and organisational characteristics included as explanatory variables

Category	Variables from ESENER-3
Technical	Use of 6 different digital technologies (Q310).
Economic	Current economic situation of the establishment (Q400).
Social and organisational	Establishment size class (Q102gr).
	Is the establishment part of a multi-establishment organisation? (Q100all).
	Proportion of employees aged 55 or more (Q105).
	Do any employees have difficulties understanding the language spoken at the premises? (Q104).
	Do any employees regularly work from home? (Q106).
	Do any employees work anywhere else outside the premises of the establishment? (Q107).
	Are persons working in the establishment who are not on the payroll? (Q103).
	Does the establishment belong to the public sector? (Q111).

Source: Panteia based on ESENER-19

The latent class analysis performed in the previous EU-OSHA study on ESENER data for the HeSCare sector[51] already showed clear differences in OSH management between different size classes, and between public and private organisations. In the current analysis, an examination took place regarding the associations of these variables (and the other factors listed above) with OSH management are in fact the result of differences in other organisational factors.

An important candidate for this mediating role is the presence of employee representation in an establishment. For example, if larger establishments are more likely to have employee representation and it is really the employee representatives that raise increased attention for OSH management, this can explain part of the difference observed between size classes. The current regression analysis allows us to investigate to what extent such a mediation effect occurs.

The ESENER-19 survey contains several items relating to employee representation. After a careful examination of the available items, only question Q350 was chosen in the regression models, as this is the only question that was asked to all participants. Question 350 measures four different types of

[50] The exact correlations are 0.65 in subsector Q86 (Healthcare), 0.54 in subsector Q87 (Residential care), 0.55 in subsector Q88 (Social work) and 0.58 in the total EU-27 economy.

[51] Human health and social work activities – evidence from the European Survey of Enterprises on New and Emerging Risks (ESENER) | Safety and health at work EU-OSHA (europa.eu)

employee representation. The first three of these have not been presented to establishments in all participating countries, because in some countries these specific types of representation do not occur. However, this problem was solved by aggregating the answers to the questions concerning the four different types to two variables:

Employee representation: general. This variable indicates whether a works council and/or trade union representation is present in the establishment.

Employee representation: health and safety. This variable indicates whether a health and safety committee and/or health and safety representative is present in the establishments.

These two variables can be constructed for establishments from all EU-27 countries.

In addition to employee representation, the following potentially explanatory variables were included, which may also mediate differences between establishments from different size classes or other categories:

- The occurrence of several different OSH risk factors in the establishment (Q200)
- The occurrence of several psychosocial risk factors (Q201)
- Whether an establishment believes psychosocial risks are easier or more difficult to address than other OSH risks (Q307)
- An establishment's main reasons for addressing health and safety (Q262)
- The main difficulties an establishment faces in addressing health and safety (Q263)
- Control variables:
- Country dummies52
- Sector dummies (in the case of the total EU-27 economy)
- Whether an establishment is its organisation's headquarters or a subsidiary site (Q101all)

Which models were estimated?

One of the questions to be answered is whether the relationships between establishment characteristics and (psychosocial and general) OSH management are different in each subsector of the HeSCare sector. For example, establishments whose economic situation is good may have more attention to OSH management in one subsector, while the economic situation makes no difference in another subsector. A related question is how the relationships between factors differ between HeSCare sectors and the total economy.

To answer these questions, separate regression models for each of the three subsectors and the total economy were estimated, as well as for both general and psychosocial OSH management. This leads to a total of 8 regression models.

Furthermore, each of the 8 models was estimated in five steps.

The more explanatory variables are included in the model, the less observations are available for the regression analyses (most questions have been answered by most establishments, but only a few questions have been answered by all establishments). Losing many observations may result in selection bias. For this reason, a preliminary regression was used to determine which of the explanatory variables were significantly related to the dependent variable (attention for general or psychosocial OSH management) and which were not.

Then, a re-estimation of the regression model took place with the explanatory variables entering the model in four consecutive steps, allowing us to conserve as many observations as possible at each step. These four steps can also be interpreted as four different (nested) models:

1. The most basic model includes only the technical, economic, social and organisational characteristics listed in Table B 3, as well as the two dummy variables indicating whether establishments did not answer some of the questions on OSH management.

[52] It goes beyond the scope of this report to interpret any particular differences between countries, but country dummies were included in the models to correct for any possible differences between countries that are not captured by the variables included in the models. The same is true for differences between sectors in the case of the total economy.

2. Then, two variables were added representing employee representation to the basic model. The effect this has on coefficients from the variables that are also in the first model, tells us to what extent the relation of those variables with the outcome variable is mediated by the presence or absence of employee representation.
3. Next, any variables to model 2 were added that show a significant relation with the outcome variable in the preliminary regression analysis. Since this preliminary analysis was done separately for each of the 8 models, the list of variables added at this step was slightly different in each case.
4. In the final model, all non-significant explanatory variables were added to model 3.

With each step, the number of observations on which the results are based decreases. However, the addition of selected significant factors in step 3 compared to step 2 increases the explanatory power (adjusted R squared) of each model by so much that this outweighs the loss of observations. Therefore, step 3 is our main source for associations between factors and outcome variables. Comparisons with steps 1 and 2 are used to draw conclusions on possible mediating relationships between different factors.

As a result of the method, the added explanatory power of step 4 over step 3 is always very limited. Therefore, the results of each step 4 are presented below to show how the addition of all possible explanatory factors affects the coefficients of the relevant factors, but results of step 4 will not be examined in detail.

Regression for total EU-27 economy to compare with HeSCare

To see if OSH management is influenced by different factors in the HeSCare subsectors than in other sectors of the EU-27 economy, an estimate was made on the same regression models for all subsectors as well as the total economy. However, as there are so many more observations from the total economy (37460 compared to 1581, 967 and 1416 for each HeSCare subsector) this would not yield comparable results due to much higher statistical power. To remedy this, a random subsample was taken from the total economy that was more comparable in size to the samples from each HeSCare subsector. The size of this subsample is comparable but still larger than the samples from each subsector. The reason for this is that establishments from the total economy are a much more heterogeneous population than establishments from one particular subsector. As a result, the variance in any particular variable will also be higher, and more observations are needed to obtain a representative subsample and achieve the same statistical power. A random sample of approximately 10% of the observations from the total economy. This resulted in a representative subsample of 3698 observations on which regression analyses was performed for the total economy.

Which estimation technique was used?

All models were estimated using ordinary least squares (OLS).

Results

The full outcomes of the regression models are presented in the section Tables below, where the most important relations between OSH management and other factors are summarised. Comparisons are drawn between the different subsectors and the total economy, and between general and psychosocial OSH management.

It is important to note that regression analysis can only reveal correlations between variables. A correlation does not always imply a causal relationship.

Attention to General OSH-management

Employee representation mediates size class differences

As expected, our regression analyses revealed a significant correlation between size class and general OSH management, where attention to general OSH management is higher in larger establishments. However, this difference was strongly attenuated in all models by adding employee representation as a factor. This means that part of the difference between size classes is due to differences in employee representation, where larger establishments are more likely to have some form of employee

representation which then results in greater attention for general OSH management. This is an effect seen in all HeSCare subsectors as well as the total economy.

Technological factors associated with general OSH management vary

In all models, a positive correlations is seen between some form of digitalisation and general OSH management. In subsectors 86 and 87 this relationship is strongest for the relatively common use of laptops and other mobile devices. In subsector 88 on the other hand, general OSH management is related more strongly to the use of technologies that are used in only a small minority of establishments (see chapter 5): machines, systems or computers monitoring workers performance and the use of wearable devices. In the total economy, all these factors play a role.

Economic situation is correlated with OSH management

In three of the four models, establishments in a good or quite good economic situation is positively associated with attention to general OSH management. The only case where the association is not seen is in subsector 86. The number of establishments reporting a (quite) good economic situation is similar for all three subsectors, but it is possible that the Healthcare subsector in particular has certain mechanisms or regulations in place that mitigate a negative effect of economic difficulty on attention for general OSH management.

Social and organisational factors: visits from labour inspectorate most important predictor

In every model except for subsector 88 (Social work), establishments that are part of multi-establishment organisations have better general OSH management than single establishments. In the Social work subsector, there is a difference between the headquarters of multi-establishment organisations and subsidiary sites: interestingly, attention for general OSH management is positively correlated with being a subsidiary site.

In subsectors 87 and 88, general OSH management is also positively correlated with having persons working in the establishment who are not on the payroll (e.g., subcontractors, temporary agency workers or volunteers). In subsector 86 and the total economy, instead, it is associated with establishments where some of the employees regularly work from home. No significant associations with the other social and organisational factors were found.

However, one additional factor that is strongly associated with attention for OSH management is whether or not an establishment has had a visit from the labour inspectorate in the last three years. In all three subsectors as well as the total economy, visits from the labour inspectorate are positively associated with attention to general OSH management.

Risk factors associated with general OSH management vary

The attention to general OSH management is also associated with the presence of particular risk factors. However, which factors are the most important differs for each subsector. Repetitive hand or arm movements are an important predictor in every HeSCare subsector. In the Social work subsector, attention for general OSH management is also positively associated with the presence of risks associated with lifting or moving people or heavy loads, and chemical or biological substances. The risk of slips, trips and falls is an important predictor in the Healthcare and Residential care subsectors. But the Residential care subsector has the widest range of risk factors predicting attention to general OSH management: in addition to repetitive movements, lifting and slips, trips and falls, general OSH management is also positively associated with the risks of prolonged sitting and accidents with vehicles in the course of work. Moreover, the Residential care subsector is the only one where attention for general OSH management is negatively associated with the presence of a psychosocial risk factor: poor communication or cooperation within the organisation.

In the total economy, the only risk factors associated with attention to general OSH management are lifting, repetitive hand or arm movements and accidents with vehicles. The presence of all these risk factors is positively associated with attention for general OSH management.

Reasons and difficulties: meeting expectations from employees is an important motivator

Participants in the ESENER-survey were also asked about the most important reasons to address health and safety in their establishments, and the most important difficulties they face when doing so.

In all HeSCare subsectors, an important reason is meeting expectations from employees or their representatives. This is in line with the positive correlation of employee representation with attention to general OSH management intensity. In the Healthcare and Residential care subsectors increasing or maintaining productivity is also important, while establishments in the social work subsector are instead motivated to avoid fines and sanctions from the labour inspectorate.

In the total economy, the range of reasons that are significantly associated with differences in attention to general OSH management intensity is slightly broader, with a more important role for the need to fulfil legal obligations.

In terms of difficulties, the lack of expertise or specialist support is negatively associated with attention to general OSH management in all three subsectors. In Residential care, it is negatively associated with a lack of time or staff as well, but also positively associated with establishments reporting a lack of awareness among staff. In the Social work subsector, there is also a positive association of attention to general OSH management with establishments reporting a lack of money as a difficulty. As noted before in the EU-OSHA study on the Transportation and storage sector[53], this may be a case of reversed causality where establishments only become aware of certain difficulties *because* they engage in OSH management.

The main difficulties associated with differences in attention for general OSH management in the total economy are similar to those observed in the HeSCare subsectors, with the addition of paperwork.

Attention to psychosocial OSH-management

Validcount: differences between establishments that answered all questions and those that did not

Before the relevant establishment characteristics are discussed, it is important to mention that in the social work subsector and the total EU-27 economy, there is a significant difference in attention to psychosocial OSH management between establishments that only provided a valid answer to 6 of the questions on attention to psychosocial OSH management, and those that answered 7 or all 8 questions. Interestingly, establishments that only answered 6 questions scored higher. In other words, it is not the case that establishments with more attention to psychosocial OSH management also take more care in answering the questions on these topics. Instead, it is possible that the questions establishments fail to answer most often relate to the OSH measures they are least likely to engage in.

By adding dummy variables for “validcount” to the model, this corrected any differences in number of questions answered so they no longer influence the relations of other factors with attention for psychosocial OSH management.

Does employee representation mediate size class differences?

As in the case of attention to general OSH management, any differences in attention to psychosocial OSH management that exist between size classes are strongly attenuated when employee representation is added to the model. However, this effect is only observed in the Healthcare subsector and the total economy. In the residential care and social work subsectors, there is no significant association between size class and attention to psychosocial OSH management to begin with. This may mean differences between size classes are smaller in these subsectors, or they are better explained by other variables in the model.

In line with this finding, the associations between both forms of employee representation (general and health and safety related) and attention to psychosocial OSH management is strongest in the Healthcare subsector and the total economy. In fact, in the social work subsector, there is not a significant association between attention to psychosocial OSH management and the presence of health and safety-related employee representation at all.

Technological factors: monitoring workers’ performance most predictive of psychosocial OSH management

There is a positive association between psychosocial OSH management and the use of various digital technologies. The use of machines, systems or computers monitoring workers’ performance is positively

[53] Transportation and storage activities – Evidence from the European Survey of Enterprises on New and Emerging Risks (ESENER) | Safety and health at work EU-OSHA (europa.eu)

associated with attention to psychosocial OSH management across all HeSCare subsectors. In addition, the use of laptops and other mobile devices is an important predictor in the Healthcare subsector and the total economy. The presence of machines, systems or computers determining the content or pace of work is an important predictor in the social care subsector and the total economy. In the Residential care subsector on the other hand, the attention to psychosocial OSH management is most related to the use of robots that interact with workers. This does not need to be a causal relationship; the association could also point to a particular subdivision of this subsector in which the use of robots is particularly high and the attention to psychosocial risk management is as well.

Economic situation associated with psychosocial OSH management intensity in some subsectors.

In the Social work subsector and the total economy, establishments in a (quite) good economic situation show higher levels of attention to psychosocial OSH management. This is not the case in the Healthcare and Residential care subsectors.

Social and organisational factors less clearly associated with attention to psychosocial OSH management than attention for general OSH management

In all three HeSCare subsectors, establishments that are part of a multi-establishment organisation have higher attention to psychosocial OSH care than single establishments. However, in the Residential care and social work subsectors, this difference is strongly diminished when other explanatory variables are added to the model, suggesting that the difference between single establishments and multi-establishment organisations is really due to differences in the prevalence of these other factors.

There is no difference between the headquarters of multi-establishment organisations and subsidiary sites in the Residential care and social work subsectors, with subsidiary sites showing higher attention to psychosocial OSH management.

Visits from the labour inspectorate, which were strongly associated with attention to general OSH management, play a less important role in attention to psychosocial OSH management. There is a positive association in the Healthcare subsector.

Risk factors vary between subsectors

The presence of risk factors is also less strongly associated with attention to psychosocial OSH management than with attention for general OSH management. In the Healthcare subsector there are no significant associations between particular risk factors and attention to psychosocial OSH management. In Residential care, attention to psychosocial OSH management is slightly higher in establishments where time pressure is a risk factor. This risk factor also plays a role in the social work subsector, in addition to risks relating to chemical or biological substances.

Different risk factors play a role in the total economy. Here, attention to psychosocial OSH management is only predicted by risks related to lifting and having to deal with difficult customers, patients, etc. It is known that dealing with difficult patients is an important risk factor for the HeSCare sector as well. However, it is possible that this risk factor is so ubiquitous in this sector that even establishments where it does not take place (yet) have measures in place to deal with it.

Reasons and difficulties: desire to meet expectations from employees also an important driver for attention to psychosocial OSH management

The reasons for addressing health and safety that are predictive of attention to psychosocial OSH management are similar to those observed for attention for general OSH management. Meeting expectations from employees or their representatives is an important motivator in all three HeSCare subsectors as well as the total economy. In fact, this seems to mediate some of the positive association of employee representation with attention to psychosocial OSH management.

Other important reasons differ per subsector. Increasing or maintaining productivity is positively associated with attention to psychosocial OSH management only in the Healthcare subsector; the same is true for maintaining the organisation’s reputation in the social work subsector and the total economy.

None of the HeSCare subsectors show any association between attention to psychosocial OSH management and the reporting of difficulties in addressing health and safety. In the total economy, attention to psychosocial OSH management is negatively associated with a lack of awareness among

management. In addition, there is a positive association between attention to psychosocial OSH management and reporting a lack of time or staff to address health and safety. Again, this may be a case of reverse causality where establishments actually run into this difficulty more often as they engage in OSH management more.

Research question 3

Which data were used?

For the analysis of changes over time (research question 3), a comparison has been made in the outcomes of the ESENER-19 wave with results from ESENER-14, collected in 2014. This was done for the NACE-Q sector as a whole, as ESENER-14 data were not available on the subsector level. This sample from ESENER-14 includes observations from 3186 HeSCare establishments in EU-27 Member States.

Which statistical method was used?

A comparison of the proportions of answers given to the same questions in 2014 and 2019 using cross tables was carried. A chi-square test was used to test for statistical significance of difference between the two waves.

Which dependent variables were used?

For the third research question. the dependent variables are the economic, social and organisational factors that the first part of the analysis has shown to be associated with attention to OSH management, as well as the other variables (risk factors, reasons for addressing OSH and difficulties encountered when doing so) that showed a significant association with attention to general or psychosocial OSH management.

ESENER-14 did not yet include a question on the use of digital technologies in establishments. Therefore, it is not possible to report on how the prevalence of these technical factors has developed over time. The same is true for the presence of persons in the establishment who are not on the payroll and the presence of certain risk factors.

Results

Table B 4 below shows the evolution in the reported presence of economic, social and organisational factors in EU-27 HeSCare establishments between 2014 and 2019.

A very important predictor of both attention to general and psychosocial OSH management is the presence of employee representation. While the presence of general employee representation has increased only very slightly (less than 1%), the presence of health and safety representatives and/or committees has increased by 3 percentage points. As discussed in the main text of this report, all forms of employee representation are significantly more common in the HeSCare sector than in the total economy.

Another important predictor is whether or not the establishment has had a visit from the labour inspectorate in the last 3 years. The number of establishments reporting such a visit has dropped by 10 percentage points between 2014 and 2019: from 46% to 36%.

The economic situation of HeSCare establishments has clearly improved between 2014 and 2019, with 63% of establishments reporting a “very good” or “quite good” economic situation in 2019 compared to 47% in 2014. A similar increase has taken place in the EU-27 economy as a whole.

The majority of establishments in the HeSCare sector (59% in 2019) form a single organisation, rather than being part of a multi-establishment organisation. This number has increased only very slightly since 2014.

While working from home has increased by 3 percentage points, it was still very uncommon in the HeSCare sector in 2019: only 13% of establishments report any employees working from home.

Table B 4: Percentage of EU-27 HeSCare establishments reporting presence of economic, social and organisational factors in ESENER-2014 and ESENER-2019, EU-27 (%)

	2014	2019
Employee representation:		
..general. *	42	42
..health and safety. *	68	71
Visit by labour inspectorate in last 3 years. *	46	36
Economic situation very good or quite good. *	47	63
Establishment is single organisation. *	58	59
Do any employees work from home. *	10	13

Source: Panteia based on ESENER-2014 and ESENER-2019

* Difference between 2014 and 2019 is statistically significant at the 0.05 level.

Risk factors

Of the 8 general OSH risk factors that were measured in both surveys, the most pronounced increase is seen in the occurrence of repetitive hand or arm movements: 15 percentage points, from 51% to 66%. Out of all risk factors, this is also the most consistent predictor of attention to general OSH management in all three subsectors of the HeSCare sector.

For attention to psychosocial OSH management, the most important predicting risk factor is the presence of time pressure. This risk factor has also become more common in the HeSCare sector, increasing from 51% to 58% between 2014 and 2019. As noted in the main text as well, this risk factor is more common in the HeSCare sector than in many other sectors. Of establishments in the total economy, 45% reported time pressure as a risk factor in 2019.

Developments in the occurrence of all risk factors are shown in Table B 5 below.

Table B 5: Percentage of EU-27 HeSCare establishments reporting presence of general and psychosocial risk factors in ESENER-2014 and ESENER-2019, EU-27 (%)

	2014	2019
OSH risk factors:		
..lifting or moving people or heavy loads. *	54	57
..repetitive hand or arm movements. *	51	66
..loud noise.	22	22
..heat, cold or draught.	25	23
..risk of accidents with machines.	33	30
..risk of accidents with vehicles in the course of work.	38	39
..chemical or biological substances.	49	47
..increased risk of slips, trips and falls.	26	30
Psychosocial risk factors:		
..time pressure. *	51	58
..poor communication or cooperation. *	22	27
..job insecurity. *	19	13
..difficult customers. *	78	83
..long or irregular working hours. *	28	31

Source: Panteia based on ESENER-2014 and ESENER-2019

* Difference between 2014 and 2019 is statistically significant at the 0.05 level.

Reasons for addressing OSH and difficulties encountered when doing so

The reason for addressing health and safety that is most predictive of both attention to general and psychosocial OSH management intensity is the desire to meet expectations from employees or their representatives. The percentage of establishments reporting this as a major reason has increased slightly between 2014 and 2019. However, it should be noted that the percentage was very high already: 82% in 2014. When establishments that report it as a minor reason are included, it can be seen that this motivation drives nearly all establishments in the HeSCare sector: 95% in 2014 and 96% in 2019.

In all three HeSCare subsectors, there is a negative association between attention to general OSH management and reporting a lack of expertise or specialist support as a difficulty. This association was not found for psychosocial OSH management. Looking at how often this difficulty is reported by HeSCare establishments, 15% reported it as a major difficulty in 2019. An additional 29% reported it as a minor difficulty[54]. Both percentages have increased slightly since 2014 but this increase is not statistically significant.

[54] On question 263 establishments could answer whether something is a major difficulty in addressing OSH, a minor difficulty, or not a difficulty at all. The same is true for question 262: major/minor reasons to address OSH. Table B6 shows the percentage of establishments reporting whether something is a major difficulty.

Table B 6: Percentage of EU-27 HeSCare establishments reporting major reasons and difficulties related to addressing OSH in ESENER-2014 and ESENER-2019, EU-27 (%)

	2014	2019
Reasons to address health and safety (reported as major reason):		
..fulfilling legal obligation. *	88	90
..meeting expectations from employees. *	82	85
..increasing productivity. *	56	53
..organisation's reputation.	78	76
..avoiding fines from the labour inspectorate.	72	74
Difficulties in addressing health and safety (reported as major difficulty):		
..lack of time or staff. *	29	41
..lack of money. *	26	26
..lack of awareness among staff. *	19	20
..lack of awareness among management. *	13	13
..lack of expertise or specialist support.	13	15
..paperwork. *	31	34
..complexity of legal obligations. *	40	46

Source: Panteia based on ESENER-2014 and ESENER-2019

* Difference between 2014 and 2019 is statistically significant at the 0.05 level.

Tables

General OSH-management

Table B 7: OLS regressions on general OSH management practices indicator for subsector Q86 Healthcare, EU-27, 2019 (%)

Variable	Model 1		Model 2		Model 3		Model 4	
Adjusted R square of the model:	0.253		0.348		0.448		0.449	
Number of valid observations:	1366		1353		1252		1056	
	B	**Sign.**	**B**	**Sign.**	**B**	**Sign.**	**B**	**Sign.**
Constant	0.489 **	0.000	0.408 **	0.000	0.295 **	0.000	0.248 **	0.000
validcount_dummy_26	-0.003	0.886	-0.019	0.357	-0.009	0.679	-0.009	0.719
validcount_dummy_29	-0.000	0.970	-0.009	0.425	-0.012	0.265	-0.018	0.150
Technical, economic, social and organisational factors								
Use of digital technologies:								
..use of personal computers.	0.022	0.157	0.027	0.056	0.035 *	0.020	0.036 *	0.029
..use of laptops, tablets, smartphones or other mobile computer devices.	0.081 **	0.000	0.065 **	0.000	0.044 **	0.000	0.045 **	0.000
..use of robots that interact with workers.	0.048 *	0.016	0.043 *	0.021	0.045 *	0.013	0.057 **	0.004
..machines, systems or computers determining content or pace of work.	0.006	0.642	0.001	0.921	-0.002	0.877	0.000	0.981
..machines, systems or computers monitoring workers performance.	0.062 **	0.000	0.045 **	0.003	0.016	0.275	0.020	0.211
..wearable devices.	0.052 **	0.006	0.040 *	0.022	0.027	0.112	0.021	0.239
Economic situation of the establishment good or quite good.	0.019	0.06	0.017	0.077	0.011	0.223	0.013	0.226
Establishment size classes (default size class is 5-9 employees):								
..10-19 employees.	0.023	0.088	0.008	0.526	0.000	0.995	0.000	0.986
..20-49 employees.	0.076 **	0.000	0.046 **	0.001	0.043 **	0.003	0.026	0.103
..50-99 employees.	0.082 **	0.000	0.026	0.169	0.037	0.052	0.047 *	0.029
..100-149 employees.	0.087 **	0.001	0.014	0.558	0.001	0.956	-0.004	0.876
..150-249 employees.	0.127 **	0.000	0.048	0.054	0.032	0.197	0.018	0.507
..250 or more employees.	0.164 **	0.000	0.087 **	0.000	0.072 **	0.000	0.064 **	0.002
Establishment is single organization.	-0.067 **	0.000	-0.048 **	0.000	-0.041 **	0.000	-0.038 **	0.006
Share of employees aged 55+ (default category is 1 – 25%):								
..none.	0.000	0.992	0.018	0.190	0.018	0.166	0.023	0.119
..25-50%.	-0.006	0.598	-0.005	0.641	-0.002	0.854	0.002	0.834

Variable	Model 1		Model 2		Model 3		Model 4	
..more than 50%.	-0.011	0.517	-0.011	0.477	0.000	0.981	0.006	0.726
Are there persons working in the establishment who are not on the payroll?	-0.005	0.602	-0.009	0.330	-0.002	0.828	-0.006	0.592
Do any employees have difficulties understanding the language?	0.001	0.938	0.005	0.773	0.012	0.479	0.014	0.421
Do any employees regularly work from home?	0.025	0.072	0.028 *	0.032	0.026 *	0.043	0.021	0.145
Do any employees work elsewhere outside the premises of the establishment?	-0.001	0.897	0.009	0.320	0.010	0.265	0.002	0.871
Does this establishment belong to the public sector?	0.013	0.229	-0.010	0.323	-0.011	0.315	-0.009	0.459
Employee representation								
Employee representation: general.			0.080 **	0.000	0.063 **	0.000	0.065 **	0.000
Employee representation: health and safety.			0.108 **	0.000	0.105 **	0.000	0.103 **	0.000
Additional explanatory variables								
Types of risks:								
..repetitive hand or arm movements.					0.030 **	0.001	0.029 **	0008
..increased risk of slips, trips and falls.					0.037 **	0.000	0.035 **	0.001
Visit by labour inspectorate in last 3 years.					0.036 **	0.000	0.041 **	0.000
Reasons for addressing health and safety:								
..meeting expectations from employees or their representatives (major reason).					0.061 **	0.000		
..maintaining or increasing productivity.					0.055 **	0.000		
Difficulties in addressing health and safety:								
..a lack of expertise or specialist support.					-0.034 **	0.000		
Country (default is Ireland).					yes		yes	
Non-significant variables								
Types of risks:								
..lifting or moving people or heavy loads.							0.019	0.107
..prolonged sitting.							-0.018	0.119
..tiring or painful positions.							-0.005	0.626
..loud noise.							-0.004	0.735
..heat, cold or draught.							-0.004	0.739

Variable	Model 1	Model 2	Model 3	Model 4	
..risk of accidents with machines or hand tools.				0.000	0.996
..risk of accidents with vehicles in the course of (not on the way to/from) work.				0.019	0.098
..chemical or biological substances in the form of liquids, fumes or dust.				0.009	0.437
Psychosocial risks:					
..time pressure.				0.006	0.589
..poor communication or cooperation within the organisation.				-0.017	0.151
..fear of job loss.				0.000	0.972
..having to deal with difficult customers, patients, pupils etc.				-0.018	0.362
..long or irregular working hours.				-0.003	0.775
Establishment is subsidiary site.				0.007	0.667
PSR risks are easier to address than other risks.				0.020	0.202
PSR risks are more difficult to address than other risks.				0.014	0.202
Reasons for addressing health and safety:					
..fulfilling legal obligation.				0.024	0.456
..fulfilling legal obligation (major reason).				-0.001	0.948
..meeting expectations from employees or their representatives.				0.038	0.235
..maintaining or increasing productivity (major reason).				0.016	0.197
..maintaining the organisation's reputation.				0.031	0.220
..maintaining the organisation's reputation (major reason).				0.006	0.674
..avoiding fines and sanctions from the labour inspectorate.				-0.034	0.143
..avoiding fines and sanctions from the labour inspectorate (major reason).				0.016	0.240
Difficulties in addressing health and safety:					
..a lack of time or staff.				0.008	0.522
..a lack of time or staff (major difficulty).				-0.015	0.197
..a lack of money.				0.022	0.078
..a lack of money (major difficulty).				-0.007	0.556
..a lack of awareness among staff.				-0.015	0.260
..a lack of awareness among staff (major difficulty).				0.010	0.504

Variable	Model 1	Model 2	Model 3	Model 4	
..a lack of awareness among management.				0.000	0.975
..a lack of awareness among management (major difficulty).				-0.034	0.053
..a lack of expertise or specialist support (major difficulty).				-0.025	0.120
..the paperwork.				0.003	0.826
..the paperwork (major difficulty).				-0.005	0.683
..the complexity of legal obligations.				-0.007	0.621
..the complexity of legal obligations (major difficulty).				0.017	0.157

Source: Panteia based on ESENER-19

Significant at: ** p<0.01; * p<0.05. All explanatory variables are dummy variables (0=no. 1=yes).

Table B 8: OLS regressions on general OSH management practices indicator for subsector Q87 Residential care, EU-27, 2019 (%)

Variable	Model 1		Model 2		Model 3		Model 4	
Adjusted R square of the model:	0.129		0.194		0.367		0.397	
Number of valid observations:	863		855		778		673	
	B	**Sign.**	**B**	**Sign.**	**B**	**Sign.**	**B**	**Sign.**
Constant	0.511 **	0.000	0.447 **	0.000	0.286 **	0.000	0.168 *	0.013
validcount_dummy_26	0.006	0.816	0.010	0.691	0.000	0.998	-0.019	0.619
validcount_dummy_29	0.008	0.524	0.008	0.505	0.007	0.592	0.010	0.468
Technical, economic, social and organisational factors								
Use of digital technologies:								
..use of personal computers.	0.026	0.082	0.021	0.148	0.013	0.372	0.026	0.102
..use of laptops, tablets, smartphones or other mobile computer devices.	0.049 **	0.001	0.031 *	0.026	0.032 *	0.021	0.023	0.157
..use of robots that interact with workers.	0.064	0.066	0.054	0.104	0.032	0.307	0.017	0.616
..machines, systems or computers determining content or pace of work.	0.030	0.133	0.033	0.089	0.037	0.057	0.034	0.082
..machines, systems or computers monitoring workers performance.	0.038	0.082	0.027	0.196	0.008	0.704	-0.001	0.976
..wearable devices.	0.029	0.284	0.031	0.225	0.037	0.137	0.045	0.088
Economic situation of the establishment good or quite good.	0.036 **	0.001	0.036 **	0.001	0.025 *	0.017	0.027 *	0.018
Establishment size classes (default size class is 5-9 employees):								
..10-19 employees.	0.020	0.303	0.021	0.266	0.011	0.556	0.019	0.328
..20-49 employees.	0.055 **	0.003	0.043 *	0.017	0.031	0.081	0.033	0.074
..50-99 employees.	0.070 **	0.000	0.050 **	0.009	0.045 *	0.023	0.047 *	0.026
..100-149 employees.	0.085 **	0.001	0.068 **	0.006	0.044	0.087	0.057 *	0.034
..150-249 employees.	0.083 **	0.008	0.052	0.085	0.025	0.393	0.028	0.383
..250 or more employees.	0.121 **	0.000	0.091 **	0.001	0.070 *	0.015	0.076 *	0.014
Establishment is single organization.	-0.037 **	0.001	-0.021	0.053	-0.027 *	0.013	-0.013	0.441
Share of employees aged 55+ (default category is 1 – 25%):								
..none.	-0.003	0.910	0.002	0.923	-0.009	0.671	0.001	0.949
..25-50%.	0.004	0.756	0.007	0.565	0.001	0.921	0.006	0.624
..more than 50%.	0.042 *	0.047	0.055 **	0.008	0.034	0.083	0.028	0.192
Are there persons working in the establishment who are not on the payroll?	0.037 **	0.001	0.031 **	0.004	0.022 *	0.037	0.023 *	0.042

Variable	Model 1		Model 2		Model 3		Model 4	
Do any employees have difficulties understanding the language?	-0.009	0.575	-0.006	0.677	-0.009	0.537	-0.005	0.753
Do any employees regularly work from home?	0.028	0.121	0.038 *	0.028	0.024	0.157	0.015	0.376
Do any employees work elsewhere outside the premises of the establishment?	0.005	0.633	0.011	0.332	0.007	0.545	0.006	0.592
Does this establishment belong to the public sector?	-0.023 *	0.049	-0.039 **	0.001	-0.010	0.430	-0.012	0.374
Employee representation								
Employee representation: general.			0.046 **	0.000	0.048 **	0.000	0.028 *	0.034
Employee representation: health and safety.			0.080 **	0.000	0.062 **	0.000	0.072 **	0.000
Additional explanatory variables								
Types of risks:								
..lifting or moving people or heavy loads.					0.047 **	0.001	0.044 **	0.004
..repetitive hand or arm movements.					0.028 **	0.010	0.029 **	0.015
..prolonged sitting.					0.022 *	0.044	0.028 *	0.016
..loud noise.					-0.023	0.092	-0.029 *	0.046
..risk of accidents with vehicles in the course of (not on the way to/from) work.					0.027 *	0.014	0.024 *	0.042
..increased risk of slips, trips and falls.					0.031 **	0.003	0.030 *	0.010
Psychosocial risks:								
..poor communication or cooperation within the organisation.					-0.025 *	0.029	-0.038 **	0.002
Visit by labour inspectorate in last 3 years.					0.031 **	0.002	0.036 **	0.001
Reasons for addressing health and safety:								
..meeting expectations from employees or their representatives.					0.113 **	0.002	0.178 **	0.000
..maintaining or increasing productivity (major reason).					0.026 *	0.012	0.026 *	0.045
Difficulties in addressing health and safety:								
..a lack of time or staff (major difficulty).					-0.033 **	0.003	-0.037 **	0.006
..a lack of awareness among staff (major difficulty).					0.027 *	0.036	0.036 *	0.017

Variable	Model 1	Model 2	Model 3		Model 4	
..a lack of expertise or specialist support.			-0.035 **	0.001	-0.030 *	0.024
Country (default is Ireland).			yes		yes	
Non-significant variables						
Types of risks:						
..tiring or painful positions.					-0.021	0.064
..heat, cold or draught.					0.006	0.665
..risk of accidents with machines or hand tools.					0.022	0.098
..chemical or biological substances in the form of liquids, fumes or dust.					0.010	0.420
Psychosocial risks:						
..time pressure.					0.017	0.151
..fear of job loss.					-0.021	0.173
..having to deal with difficult customers, patients, pupils etc.					-0.005	0.800
..long or irregular working hours.					-0.002	0.861
Establishment is subsidiary site.					0.019	0.280
PSR risks are easier to address than other risks.					-0.013	0.489
PSR risks are more difficult to address than other risks.					-0.011	0.349
Reasons for addressing health and safety:						
..fulfilling legal obligation.					-0.001	0.973
..fulfilling legal obligation (major reason).					-0.018	0.396
..meeting expectations from employees or their representatives .(major reason).					-0.016	0.332
..maintaining or increasing productivity.					0.004	0.821
..maintaining the organisation's reputation.					0.012	0.689
..maintaining the organisation's reputation (major reason).					0.005	0.754
..avoiding fines and sanctions from the labour inspectorate.					0.004	0.854
..avoiding fines and sanctions from the labour inspectorate (major reason).					0.002	0.878
Difficulties in addressing health and safety:						
..a lack of time or staff.					0.016	0.291
..a lack of money.					0.015	0.267

Variable	Model 1	Model 2	Model 3	Model 4	
..a lack of money (major difficulty).				0.013	0.330
..a lack of awareness among staff.				0.011	0.410
..a lack of awareness among management.				-0.014	0.338
..a lack of awareness among management (major difficulty).				0.009	0.658
..a lack of expertise or specialist support (major difficulty).				-0.016	0.368
..the paperwork.				0.009	0.505
..the paperwork (major difficulty).				0.000	0.999
..the complexity of legal obligations.				-0.003	0.814
..the complexity of legal obligations (major difficulty).				-0.009	0.522

Source: Panteia based on ESENER-19

Significant at: ** p<0.01; * p<0.05. All explanatory variables are dummy variables (0=no. 1=yes).

Table B 9: OLS regressions on general OSH management practices indicator for subsector Q88 Social work, EU-27, 2019 (%)

Variable	Model 1		Model 2		Model 3		Model 4	
Adjusted R square of the model:	0.156		0.218		0.390		0.415	
Number of valid observations:	1281		1244		986		943	
	B	**Sign.**	**B**	**Sign.**	**B**	**Sign.**	**B**	**Sign.**
Constant	0.522 **	0.000	0.441 **	0.000	0.236 **	0.000	0.198 **	0.000
validcount_dummy_26	0.024	0.239	0.027	0.192	0.008	0.770	0.019	0.508
validcount_dummy_29	0.028 *	0.013	0.019	0.101	0.015	0.206	0.014	0.253
Technical, economic, social and organisational factors								
Use of digital technologies:								
..use of personal computers.	0.015	0.176	0.010	0.342	0.007	0.537	-0.005	0.681
..use of laptops, tablets, smartphones or other mobile computer devices.	0.032 *	0.013	0.029 *	0.021	0.018	0.181	0.017	0.219
..use of robots that interact with workers.	-0.004	0.886	-0.005	0.846	0.020	0.474	0.014	0.626
..machines, systems or computers determining content or pace of work.	0.048 **	0.003	0.053 **	0.001	0.028	0.074	0.025	0.126
..machines, systems or computers monitoring workers performance.	0.071 **	0.000	0.068 **	0.000	0.043 **	0.008	0.040 *	0.017
..wearable devices.	0.107 **	0.000	0.098 **	0.000	0.069 **	0.004	0.069 **	0.004
Economic situation of the establishment good or quite good.	0.034 **	0.000	0.037 **	0.000	0.028 **	0.004	0.027 **	0.008
Establishment size classes (default size class is 5-9 employees):								
..10-19 employees.	0.029 *	0.013	0.027 *	0.022	0.023	0.058	0.025 *	0.041
..20-49 employees.	0.048 **	0.000	0.034 *	0.010	0.020	0.127	0.027 *	0.047
..50-99 employees.	0.077 **	0.000	0.057 **	0.003	0.027	0.160	0.037	0.060
..100-149 employees.	0.108 **	0.000	0.078 **	0.005	0.055 *	0.034	0.048	0.070
..150-249 employees.	0.120 **	0.000	0.083 **	0.003	0.057 *	0.038	0.057 *	0.036
..250 or more employees.	0.157 **	0.000	0.126 **	0.000	0.067 **	0.006	0.072 **	0.004
Establishment is single organization.	-0.048 **	0.000	-0.031 **	0.001	-0.017	0.148	-0.016	0.200
Share of employees aged 55+ (default category is 1 – 25%):								
..none.	-0.034 **	0.008	-0.024	0.054	-0.008	0.561	-0.004	0.754
..25-50%.	0.009	0.445	0.014	0.189	0.018	0.095	0.022	0.038
..more than 50%.	0.002	0.910	0.002	0.934	0.005	0.799	0.003	0.898

Variable	Model 1		Model 2		Model 3		Model 4	
Are there persons working in the establishment who are not on the payroll?	0.009	0.295	0.007	0.418	0.021 *	0.016	0.023	0.010
Do any employees have difficulties understanding the language?	0.014	0.388	0.012	0.448	0.000	0.990	0.000	0.978
Do any employees regularly work from home?	-0.014	0.290	-0.010	0.464	0.005	0.686	0.005	0.704
Do any employees work elsewhere outside the premises of the establishment?	-0.012	0.230	-0.006	0.539	0.012	0.193	0.011	0.259
Does this establishment belong to the public sector?	-0.012	0.228	-0.025 **	0.009	-0.011	0.268	-0.010	0.336
Employee representation								
Employee representation: general.			0.058 **	0.000	0.055 **	0.000	0.054 **	0.000
Employee representation: health and safety.			0.065 **	0.000	0.075 **	0.000	0.068 **	0.000
Additional explanatory variables								
Types of risks:								
..lifting or moving people or heavy loads.					0.039 **	0.000	0.041 **	0.000
..repetitive hand or arm movements.					0.034 **	0.000	0.024 *	0.015
..chemical or biological substances in the form of liquids, fumes or dust.					0.039 **	0.000	0.027 *	0.012
Visit by labour inspectorate in last 3 years.					0.042 **	0.000	0.042 **	0.000
Establishment is subsidiary site.					0.031 *	0.029	0.033 *	0.022
PSR risks are easier to address than other risks.					0.040 **	0.005	0.040 **	0.007
Reasons for addressing health and safety:								
..meeting expectations from employees or their representatives (major reason).					0.049 **	0.000	0.039 **	0.007
..avoiding fines and sanctions from the labour inspectorate.					0.061 **	0.001	0.042 *	0.045
Difficulties in addressing health and safety:								
..a lack of money.					0.008	0.440	0.032 *	0.012
..a lack of expertise or specialist support (major difficulty).					-0.055 **	0.000	-0.043 **	0.002
Country (default is Ireland).					yes		yes	
Non-significant variables								
Types of risks:								

Variable	Model 1	Model 2	Model 3	Model 4	
..prolonged sitting.				0.014	0.207
..tiring or painful positions.				0.002	0.868
..loud noise.				0.009	0.393
..heat, cold or draught.				0.003	0.805
..risk of accidents with machines or hand tools.				0.025	0.058
..risk of accidents with vehicles in the course of (not on the way to/from) work.				0.008	0.460
..increased risk of slips, trips and falls.				0.003	0.749
Psychosocial risks:					
..time pressure.				0.015	0.144
..poor communication or cooperation within the organisation.				-0.012	0.263
..fear of job loss.				0.014	0.215
..having to deal with difficult customers, patients, pupils etc.				0.024	0.097
..long or irregular working hours.				-0.013	0.230
PSR risks are more difficult to address than other risks.				0.005	0.607
Reasons for addressing health and safety:					
..fulfilling legal obligation.				-0.024	0.452
..fulfilling legal obligation (major reason).				0.003	0.857
..meeting expectations from employees or their representatives.				0.029	0.446
..maintaining or increasing productivity.				0.029	0.054
..maintaining or increasing productivity (major reason).				0.005	0.608
..maintaining the organisation's reputation.				-0.007	0.787
..maintaining the organisation's reputation (major reason).				0.026	0.059
..avoiding fines and sanctions from the labour inspectorate (major reason).				0.012	0.316
Difficulties in addressing health and safety:					
..a lack of time or staff.				-0.021	0.105
..a lack of time or staff (major difficulty).				-0.010	0.361
..a lack of money (major difficulty).				-0.016	0.161
..a lack of awareness among staff.				-0.018	0.153
..a lack of awareness among staff (major difficulty).				0.009	0.537

Variable	Model 1	Model 2	Model 3	Model 4	
..a lack of awareness among management.				-0.022	0.084
..a lack of awareness among management (major difficulty).				-0.008	0.648
..a lack of expertise or specialist support.				-0.006	0.600
..the paperwork.				0.008	0.534
..the paperwork (major difficulty).				0.002	0.891
..the complexity of legal obligations.				0.000	0.989
..the complexity of legal obligations (major difficulty).				0.010	0.369

Source: Panteia based on ESENER-19

Significant at: ** p<0.01; * p<0.05. All explanatory variables are dummy variables (0=no. 1=yes).

Table B 10: OLS regressions on general OSH management practices indicator for total EU-27 economy, EU-27, 2019 (%)

Variable	Model 1		Model 2		Model 3		Model 4	
Adjusted R square of the model:	0.218		0.305		0.460		0.474	
Number of valid observations:	3358		3323		3036		2195	
	B	**Sign.**	**B**	**Sign.**				
Constant	0.450 **	0.000	0.385 **	0.000	0.191 **	0.000	0.154 **	0.000
validcount_dummy_26	0.029	0.059	0.021	0.157	0.007	0.666	0.020	0.331
validcount_dummy_29	0.004	0.659	0.001	0.861	0.002	0.793	0.009	0.336
Technical, economic, social and organisational factors								
Use of digital technologies:								
..use of personal computers.	0.012	0.206	0.007	0.432	0.008	0.333	0.003	0.795
..use of laptops, tablets, smartphones or other mobile computer devices.	0.038 **	0.000	0.037 **	0.000	0.034 **	0.000	0.041 **	0.000
..use of robots that interact with workers.	0.013	0.357	0.006	0.643	0.001	0.928	0.004	0.795
..machines, systems or computers determining content or pace of work.	0.040 **	0.000	0.036 **	0.000	0.022 **	0.008	0.022 *	0.022
..machines, systems or computers monitoring workers performance.	0.032 **	0.002	0.019	0.055	0.030 **	0.002	0.031 **	0.005
..wearable devices.	0.049 **	0.000	0.042 **	0.001	0.041 **	0.000	0.041 **	0.002
Economic situation of the establishment good or quite good.	0.023 **	0.001	0.025 **	0.000	0.026 **	0.000	0.021 **	0.008
Establishment size classes (default size class is 5-9 employees):								
..10-19 employees.	0.043 **	0.000	0.023 **	0.005	0.015	0.058	0.003	0.710
..20-49 employees.	0.077 **	0.000	0.042 **	0.000	0.026 **	0.003	0.022 *	0.033
..50-99 employees.	0.131 **	0.000	0.078 **	0.000	0.062 **	0.000	0.051 **	0.000
..100-149 employees.	0.141 **	0.000	0.075 **	0.000	0.069 **	0.000	0.069 **	0.000
..150-249 employees.	0.182 **	0.000	0.115 **	0.000	0.082 **	0.000	0.089 **	0.000
..250 or more employees.	0.218 **	0.000	0.146 **	0.000	0.105 **	0.000	0.111 **	0.000
Establishment is single organization.	-0.049 **	0.000	-0.030 **	0.000	-0.032 **	0.000	-0.025 *	0.013
Share of employees aged 55+ (default category is 1 – 25%):								
..none.	-0.005	0.535	-0.005	0.554	0.001	0.928	0.008	0.398
..25-50%.	0.000	0.955	-0.006	0.422	-0.015	0.039	-0.016	0.057
..more than 50%.	-0.023	0.081	-0.021	0.088	-0.017	0.156	-0.007	0.631
Are there persons working in the establishment who are not on the payroll?	0.021 **	0.001	0.015 *	0.015	0.011	0.065	0.007	0.335

Variable	Model 1		Model 2		Model 3		Model 4	
Do any employees have difficulties understanding the language?	0.002	0.870	0.006	0.529	0.013	0.198	0.012	0.255
Do any employees regularly work from home?	0.001	0.886	-0.002	0.795	0.024 **	0.005	0.029 **	0.004
Do any employees work elsewhere outside the premises of the establishment?	0.012	0.057	0.014	0.017	0.005	0.398	-0.003	0.703
Does this establishment belong to the public sector?	0.004	0.621	-0.014	0.075	-0.016	0.068	-0.018	0.084
Employee representation								
Employee representation: general.			0.061 **	0.000	0.058 **	0.000	0.055 **	0.000
Employee representation: health and safety.			0.106 **	0.000	0.094 **	0.000	0.097 **	0.000
Additional explanatory variables								
Types of risks:								
..lifting or moving people or heavy loads.					0.051 **	0.000	0.044 **	0.000
..repetitive hand or arm movements.					0.022 ..	0.000	0.018 .	0.016
..risk of accidents with vehicles in the course of (not on the way to/from) work.					0.024 **	0.000	0.020 *	0.013
Visit by labour inspectorate in last 3 years.					0.031 **	0.000	0.030 **	0.000
Reasons for addressing health and safety:								
..fulfilling legal obligation.					0.078 **	0.000	0.070 **	0.001
..meeting expectations from employees or their representatives (major reason).					0.045 **	0.000	0.045 **	0.000
..maintaining or increasing productivity.					0.027 ..	0.005	0.031 .	0.023
..maintaining the organisation's reputation (major reason).					0.029 **	0.000	0.034 **	0.002
Difficulties in addressing health and safety:								
..a lack of time or staff (major difficulty).					-0.010	0.105	-0.019 *	0.025
..a lack of awareness among staff (major difficulty).					0.022 **	0.003	0.019 *	0.047
..a lack of expertise or specialist support.					-0.028 **	0.000	-0.030 **	0.001
..a lack of expertise or specialist support (major difficulty).					-0.037 **	0.000	-0.037 **	0.001
..the paperwork.					0.014 .	0.024	0.019 .	0.040
Country (default is Ireland).					yes		yes	
Sector (default is Nace-Q HeSCare).					yes		yes	

Variable	Model 1	Model 2	Model 3	Model 4	
Non-significant variables					
Types of risks:					
..prolonged sitting.				0.010	0.195
..tiring or painful positions.				0.003	0.687
..loud noise.				0.000	1.000
..heat, cold or draught.				-0.001	0.905
..risk of accidents with machines or hand tools.				0.007	0.426
..chemical or biological substances in the form of liquids, fumes or dust.				0.012	0.120
..increased risk of slips, trips and falls.				0.011	0.167
Psychosocial risks:					
..time pressure.				-0.011	0.154
..poor communication or cooperation within the organisation.				-0.008	0.354
..fear of job loss.				0.011	0.206
..having to deal with difficult customers, patients, pupils etc.				0.013	0.125
..long or irregular working hours.				0.002	0.776
Establishment is subsidiary site.				0.013	0.278
PSR risks are easier to address than other risks.				0.009	0.336
PSR risks are more difficult to address than other risks.				0.008	0.326
Reasons for addressing health and safety:					
..fulfilling legal obligation (major reason).				0.012	0.346
..meeting expectations from employees or their representatives.				0.010	0.590
..maintaining or increasing productivity (major reason).				-0.008	0.358
..maintaining the organisation's reputation.				-0.006	0.750
..avoiding fines and sanctions from the labor inspectorate.				0.002	0.895
..avoiding fines and sanctions from the labour inspectorate (major reason).				-0.001	0.948
Difficulties in addressing health and safety:					
..a lack of time or staff.				0.014	0.122
..a lack of money.				0.002	0.827
..a lack of money (major difficulty).				-0.006	0.526
..a lack of awareness among staff.				0.001	0.899

Variable	Model 1	Model 2	Model 3	Model 4	
..a lack of awareness among management.				-0.012	0.201
..a lack of awareness among management (major difficulty).				-0.017	0.158
..the paperwork (major difficulty).				-0.008	0.401
..the complexity of legal obligations.				0.010	0.291
..the complexity of legal obligations (major difficulty).				0.001	0.906

Source: Panteia based on ESENER-19

Significant at: ** p<0.01; * p<0.05. All explanatory variables are dummy variables (0=no. 1=yes).

OSH management for psychosocial risks

Table B 11: OLS regressions on psychosocial OSH management practices indicator for subsector Q86 Healthcare, EU-27, 2019 (%)

Variable	Model 1		Model 2		Model 3		Model 4	
Adjusted R square of the model:	0.148		0.204		0.280		0.303	
Number of valid observations:	1374		1356		1250		1053	
	B	**Sign.**	**B**	**Sign.**	**B**	**Sign.**	**B**	**Sign.**
Constant	0.408 **	0.000	0.312 **	0.000	0.193 **	0.000	0.086	0.254
validcount_dummy_6	0.096	0.105	0.070	0.232	0.062	0.358	0.127	0.146
validcount_dummy_7	0.036	0.141	0.031	0.186	0.022	0.390	-0.011	0.689
Technical, economic, social and organisational factors								
Use of digital technologies:								
..use of personal computers.	0.025	0.274	0.033	0.127	0.038	0.107	0.037	0.145
..use of laptops, tablets, smartphones or other mobile computer devices.	0.096 **	0.000	0.081 **	0.000	0.058 **	0.001	0.055 **	0.005
..use of robots that interact with workers.	0.030	0.298	0.031	0.276	0.031	0.291	0.023	0.451
..machines, systems or computers determining content or pace of work.	0.029	0.126	0.024	0.195	0.028	0.139	0.024	0.260
..machines, systems or computers monitoring workers performance.	0.095 **	0.000	0.079 **	0.000	0.059 *	0.012	0.059 *	0.020
..wearable devices.	0.031	0.267	0.019	0.490	0.003	0.918	-0.005	0.870
Economic situation of the establishment good or quite good.	0.022	0.137	0.022	0.126	0.014	0.340	0.034 *	0.038
Establishment size classes (default size class is 5-9 employees):								
..10-19 employees.	0.067 **	0.001	0.049 *	0.011	0.043 *	0.026	0.037	0.089
..20-49 employees.	0.047 *	0.032	0.013	0.563	0.038	0.097	0.016	0.524
..50-99 employees.	0.072 *	0.014	0.012	0.679	0.024	0.417	0.035	0.306
..100-149 employees.	0.104 **	0.006	0.023	0.539	0.035	0.358	0.030	0.482
..150-249 employees.	0.107 **	0.004	0.020	0.601	0.064	0.096	0.040	0.347
..250 or more employees.	0.111 **	0.000	0.025	0.310	0.067 *	0.014	0.053	0.100
Establishment is single organization.	-0.091 **	0.000	-0.069 **	0.000	-0.045 **	0.003	-0.036	0.096
Share of employees aged 55+ (default category is 1 – 25%):								
..none.	-0.011	0.581	0.012	0.557	0.004	0.830	0.011	0.625
..25-50%.	-0.015	0.365	-0.015	0.360	0.001	0.947	0.001	0.970
..more than 50%.	-0.046	0.056	-0.045	0.059	0.012	0.631	-0.017	0.558
Are there persons working in the establishment who are not on the payroll?	0.020	0.173	0.015	0.272	0.006	0.688	-0.001	0.966
Do any employees have difficulties understanding the language?	0.009	0.738	0.014	0.597	0.017	0.515	0.007	0.801

Variable	Model 1		Model 2		Model 3		Model 4	
Do any employees regularly work from home?	0.021	0.316	0.022	0.274	0.008	0.690	0.015	0.494
Do any employees work elsewhere outside the premises of the establishment?	0.012	0.400	0.022	0.109	0.024	0.089	0.016	0.296
Does this establishment belong to the public sector?	0.035 *	0.028	0.011	0.501	0.017	0.301	0.002	0.922
Employee representation								
Employee representation: general.			0.089 **	0.000	0.062 **	0.000	0.050 *	0.012
Employee representation: health and safety.			0.116 **	0.000	0.104 **	0.000	0.116 **	0.000
Additional explanatory variables								
Types of risks:								
..risk of accidents with machines or hand tools.					-0.019	0.193	-0.036 *	0.036
Visit by labour inspectorate in last 3 years.					0.034 *	0.023	0.038 *	0.019
Reasons for addressing health and safety:								
..meeting expectations from employees or their representatives (major reason).					0.119 **	0.000	0.102 **	0.000
..maintaining or increasing productivity.					0.074 **	0.000	0.058 *	0.028
Difficulties in addressing health and safety:								
..a lack of expertise or specialist support.					-0.024	0.084	-0.052 **	0.007
Country (default is Ireland).					yes		yes	
Non-significant variables								
Types of risks:							0.032	0.077
..lifting or moving people or heavy loads.							0.012	0.473
..repetitive hand or arm movements.							-0.007	0.682
..prolonged sitting.							-0.013	0.417
..tiring or painful positions.							-0.014	0.491
..loud noise.							0.006	0.756
..heat, cold or draught.							-0.006	0.718
..risk of accidents with vehicles in the course of (not on the way to/from) work.							0.004	0.803
..chemical or biological substances in the form of liquids, fumes or dust.							0.027	0.116
..increased risk of slips, trips and falls.							0.032	0.077
Psychosocial risks:								
..time pressure.							0.031	0.078
..poor communication or cooperation within the organisation.							-0.005	0.777
..fear of job loss.							-0.011	0.576

Variable	Model 1	Model 2	Model 3	Model 4	
..having to deal with difficult customers, patients, pupils etc.				0.020	0.515
..long or irregular working hours.				0.025	0.131
Establishment is subsidiary site.				0.038	0.144
PSR risks are easier to address than other risks.				0.008	0.726
PSR risks are more difficult to address than other risks.				0.032	0.060
Reasons for addressing health and safety:					
..fulfilling legal obligation.				0.032	0.527
..fulfilling legal obligation (major reason).				0.008	0.786
..meeting expectations from employees or their representatives.				-0.008	0.867
..maintaining or increasing productivity (major reason).				0.013	0.486
..maintaining the organisation's reputation.				-0.028	0.483
..maintaining the organisation's reputation (major reason).				0.030	0.183
..avoiding fines and sanctions from the labour inspectorate.				-0.006	0.870
..avoiding fines and sanctions from the labour inspectorate (major reason).				0.017	0.412
Difficulties in addressing health and safety:					
..a lack of time or staff.				0.011	0.579
..a lack of time or staff (major difficulty).				-0.026	0.155
..a lack of money.				0.025	0.192
..a lack of money (major difficulty).				0.006	0.752
..a lack of awareness among staff.				-0.022	0.275
..a lack of awareness among staff (major difficulty).				-0.017	0.466
..a lack of awareness among management.				-0.011	0.605
..a lack of awareness among management (major difficulty).				-0.038	0.160
..a lack of expertise or specialist support (major difficulty).				0.039	0.120
..the paperwork.				0.018	0.403
..the paperwork (major difficulty).				0.029	0.138
..the complexity of legal obligations.				0.011	0.599
..the complexity of legal obligations (major difficulty).				0.020	0.286

Source: Panteia based on ESENER-19

Significant at: ** p<0.01; * p<0.05. All explanatory variables are dummy variables (0=no. 1=yes).

Table B 12: OLS regressions on psychosocial OSH management practices indicator for subsector Q87 Residential care, EU-27, 2019 (%)

Variable	Model 1		Model 2		Model 3		Model 4	
Adjusted R square of the model:	0.064		0.096		0.195		0.204	
Number of valid observations:	870		860		842		676	
	B	**Sign.**	**B**	**Sign.**	**B**	**Sign.**	**B**	**Sign.**
Constant	0.577 **	0.000	0.516 **	0.000	0.234 **	0.001	0.125	0.244
validcount_dummy_6	-0.090	0.125	-0.073	0.218	-0.083	0.192	-0.022	0.766
validcount_dummy_7	0.006	0.821	0.010	0.712	0.010	0.690	-0.012	0.719
Technical, economic, social and organisational factors								
Use of digital technologies:								
..use of personal computers.	0.011	0.612	0.001	0.979	0.012	0.583	-0.006	0.817
..use of laptops, tablets, smartphones or other mobile computer devices.	0.057 **	0.006	0.038	0.067	-0.006	0.781	-0.008	0.741
..use of robots that interact with workers.	0.134 **	0.009	0.127 *	0.012	0.123 *	0.013	0.087	0.106
..machines, systems or computers determining content or pace of work.	0.033	0.273	0.031	0.288	0.051	0.079	0.061	0.052
..machines, systems or computers monitoring workers performance.	-0.022	0.480	-0.037	0.246	-0.073 *	0.019	-0.102 *	0.004
..wearable devices.	0.044	0.260	0.046	0.236	0.061	0.104	0.035	0.410
Economic situation of the establishment good or quite good.	0.021	0.202	0.022	0.179	0.024	0.139	0.026	0.158
Establishment size classes (default size class is 5-9 employees):								
..10-19 employees.	0.002	0.944	0.005	0.855	0.022	0.418	0.005	0.881
..20-49 employees.	0.002	0.949	-0.010	0.721	0.016	0.538	-0.019	0.519
..50-99 employees.	-0.030	0.298	-0.047	0.103	-0.003	0.907	-0.045	0.175
..100-149 employees.	-0.001	0.985	-0.016	0.664	0.041	0.289	0.006	0.897
..150-249 employees.	-0.039	0.404	-0.069	0.134	0.003	0.942	-0.057	0.272
..250 or more employees.	0.002	0.967	-0.028	0.504	0.036	0.407	-0.015	0.760
Establishment is single organization.	-0.068 **	0.000	-0.049 **	0.003	0.014	0.566	0.017	0.535
Share of employees aged 55+ (default category is 1 – 25%):								
..none.	-0.029	0.384	-0.017	0.610	-0.026	0.423	-0.056	0.123
..25-50%.	-0.012	0.510	-0.009	0.606	-0.008	0.616	-0.018	0.345
..more than 50%.	0.022	0.481	0.032	0.293	0.017	0.572	0.010	0.760
Are there persons working in the establishment who are not on the payroll?	0.050 **	0.002	0.043 **	0.007	0.013	0.412	0.015	0.411
Do any employees have difficulties understanding the language?	-0.002	0.937	0.000	0.995	-0.034	0.134	-0.009	0.705

Variable	Model 1		Model 2		Model 3		Model 4	
Do any employees regularly work from home?	0.033	0.210	0.049	0.058	0.033	0.224	0.030	0.290
Do any employees work elsewhere outside the premises of the establishment?	0.029	0.085	0.031	0.061	0.029	0.076	0.014	0.461
Does this establishment belong to the public sector?	0.000	0.982	-0.017	0.310	-0.023	0.250	-0.010	0.639
Employee representation								
Employee representation: general.			0.056**	0.002	0.040*	0.032	0.028	0.175
Employee representation: health and safety.			0.071**	0.000	0.053*	0.014	0.060*	0.014
Additional explanatory variables								
Types of risks:								
..prolonged sitting.					0.031	0.058	0.043*	0.020
..loud noise.					-0.037	0.068	-0.053*	0.024
Psychosocial risks:								
..time pressure.					0.055**	0.001	0.060**	0.002
..long or irregular working hours.					0.028	0.091	0.052**	0.006
Establishment is subsidiary site.					0.053*	0.044	0.067*	0.019
Reasons for addressing health and safety:								
..meeting expectations from employees or their representatives.					0.211**	0.000	0.265**	0.000
Country (default is Ireland).					yes		yes	
Non-significant variables								
Types of risks:							-0.040	0.105
..lifting or moving people or heavy loads.							0.034	0.069
..repetitive hand or arm movements.							-0.010	0.582
..tiring or painful positions.							-0.017	0.424
..heat, cold or draught.							0.033	0.118
..risk of accidents with machines or hand tools.							0.007	0.699
..risk of accidents with vehicles in the course of (not on the way to/from) work.							0.019	0.359
..chemical or biological substances in the form of liquids, fumes or dust.							0.029	0.119
..increased risk of slips, trips and falls.							-0.040	0.105

Variable	Model 1	Model 2	Model 3	Model 4	
Psychosocial risks:					
..poor communication or cooperation within the organisation.				-0.028	0.147
..fear of job loss.				-0.011	0.640
..having to deal with difficult customers, patients, pupils etc.				0.009	0.774
Visit by labour inspectorate in last 3 years.				0.025	0.147
PSR risks are easier to address than other risks.				0.009	0.760
PSR risks are more difficult to address than other risks.				0.004	0.829
Reasons for addressing health and safety:					
..fulfilling legal obligation.				0.006	0.921
..fulfilling legal obligation (major reason).				-0.007	0.830
..meeting expectations from employees or their representatives (major reason).				-0.018	0.501
..maintaining or increasing productivity.				0.000	0.999
..maintaining or increasing productivity (major reason).				-0.005	0.813
..maintaining the organisation's reputation.				0.033	0.497
..maintaining the organisation's reputation (major reason).				0.025	0.356
..avoiding fines and sanctions from the labour inspectorate.				0.048	0.192
..avoiding fines and sanctions from the labour inspectorate (major reason).				-0.017	0.482
Difficulties in addressing health and safety:					
..a lack of time or staff.				-0.010	0.676
..a lack of time or staff (major difficulty).				-0.019	0.363
..a lack of money.				-0.004	0.870
..a lack of money (major difficulty).				0.025	0.243
..a lack of awareness among staff.				0.020	0.363
..a lack of awareness among staff (major difficulty).				0.030	0.218
..a lack of awareness among management.				-0.005	0.816
..a lack of awareness among management (major difficulty).				-0.054	0.097
..a lack of expertise or specialist support.				-0.041	0.053
..a lack of expertise or specialist support (major difficulty).				0.009	0.763
..the paperwork.				0.000	0.988
..the paperwork (major difficulty).				0.000	0.989
..the complexity of legal obligations.				-0.004	0.874
..the complexity of legal obligations (major difficulty).				-0.025	0.245

Source: Panteia based on ESENER-19

Significant at: ** p<0.01; * p<0.05. All explanatory variables are dummy variables (0=no. 1=yes).

Table B 13: OLS regressions on psychosocial OSH management practices indicator for subsector Q88 Social work, EU-27, 2019 (%)

Variable	Model 1		Model 2		Model 3		Model 4	
Adjusted R square of the model:	0.084		0.101		0.193		0.201	
Number of valid observations:	1297		1257		1060		950	
	B	**Sign.**	**B**	**Sign.**	**B**	**Sign.**	**B**	**Sign.**
Constant	0.533 **	0.000	0.479 **	0.000	0.286 **	0.000	0.261 **	0.001
validcount_dummy_6	0.039	0.405	0.071	0.149	0.128 *	0.029	0.136 *	0.040
validcount_dummy_7	0.006	0.789	0.002	0.917	0.029	0.230	0.019	0.501
Technical, economic, social and organisational factors:								
Use of digital technologies:								
..use of personal computers.	-0.010	0.537	-0.011	0.495	-0.010	0.556	-0.017	0.380
..use of laptops, tablets, smartphones or other mobile computer devices.	0.062 **	0.001	0.057 **	0.003	0.035	0.087	0.031	0.162
..use of robots that interact with workers.	0.026	0.535	0.022	0.595	0.013	0.780	0.012	0.799
..machines, systems or computers determining content or pace of work.	0.077 **	0.002	0.079 **	0.001	0.067 **	0.006	0.052 *	0.045
..machines, systems or computers monitoring workers performance.	0.056 *	0.024	0.060 *	0.016	0.052 *	0.038	0.026	0.327
..wearable devices.	0.111 **	0.002	0.098 **	0.007	0.055	0.131	0.040	0.300
Economic situation of the establishment good or quite good.	0.019	0.176	0.022	0.119	0.034 *	0.020	0.028	0.087
Establishment size classes (default size class is 5-9 employees):								
..10-19 employees.	0.020	0.248	0.016	0.365	0.020	0.281	0.017	0.392
..20-49 employees.	0.006	0.740	-0.008	0.685	-0.006	0.763	0.001	0.964
..50-99 employees.	0.021	0.479	-0.001	0.983	0.000	0.996	-0.024	0.459
..100-149 employees.	-0.005	0.903	-0.040	0.326	-0.005	0.910	-0.048	0.261
..150-249 employees.	0.027	0.525	-0.009	0.832	0.013	0.756	-0.019	0.662
..250 or more employees.	0.068	0.062	0.036	0.325	0.058	0.124	0.039	0.337
Establishment is single organization.	-0.060 **	0.000	-0.046 **	0.001	0.000	0.980	-0.008	0.704
Share of employees aged 55+ (default category is 1 – 25%):								
..none.	-0.059 **	0.002	-0.052 **	0.006	-0.036	0.081	-0.036	0.105
..25-50%.	-0.006	0.690	-0.004	0.811	0.005	0.771	0.017	0.335
..more than 50%.	-0.052	0.070	-0.053	0.068	-0.045	0.142	-0.053	0.112
Are there persons working in the establishment who are not on the payroll?	0.029 *	0.029	0.027 *	0.044	0.027 *	0.046	0.039 **	0.007
Do any employees have difficulties understanding the language?	0.023	0.315	0.019	0.417	-0.008	0.750	-0.005	0.846
Do any employees regularly work from home?	0.038	0.053	0.045 *	0.021	0.039	0.064	0.047 *	0.036

Variable	Model 1		Model 2		Model 3		Model 4	
Do any employees work elsewhere outside the premises of the establishment?	0.018	0.219	0.024	0.092	0.038	0.010	0.029	0.077
Does this establishment belong to the public sector?	0.017	0.227	0.007	0.605	0.003	0.860	0.006	0.727
Employee representation								
Employee representation: general.			0.056 **	0.000	0.040 *	0.012	0.037 *	0.026
Employee representation: health and safety.			0.032	0.055	0.012	0.503	0.016	0.425
Additional explanatory variables								
Types of risks:								
..chemical or biological substances in the form of liquids, fumes or dust.					0.059 **	0.000	0.045 *	0.010
Psychosocial risks:								
..time pressure.					0.042 **	0.005	0.044 **	0.008
Establishment is subsidiary site.					0.057 **	0.008	0.060 *	0.011
PSR risks are easier to address than other risks.					0.078 **	0.000	0.088 **	0.000
Reasons for addressing health and safety:								
..meeting expectations from employees or their representatives (major reason).					0.065 **	0.002	0.059 *	0.011
..maintaining the organisation's reputation (major reason).					0.073 **	0.000	0.053 *	0.015
Country (default is Ireland).					yes		yes	
Non-significant variables								
Types of risks:								
..lifting or moving people or heavy loads.							0.033	0.061
..repetitive hand or arm movements.							0.026	0.104
..prolonged sitting.							-0.005	0.797
..tiring or painful positions.							0.016	0.366
..loud noise.							-0.014	0.405
..heat, cold or draught.							0.008	0.660
..risk of accidents with machines or hand tools.							-0.030	0.160
..risk of accidents with vehicles in the course of (not on the way to/from) work.							0.035	0.058
..increased risk of slips, trips and falls.							0.008	0.643
Psychosocial risks:								
..poor communication or cooperation within the organisation.							-0.019	0.272
..fear of job loss.							0.003	0.884
..having to deal with difficult customers, patients, pupils etc.							-0.004	0.879

Variable	Model 1	Model 2	Model 3	Model 4	
..long or irregular working hours.				-0.003	0.851
Visit by labour inspectorate in last 3 years.				0.013	0.400
PSR risks are more difficult to address than other risks.				0.025	0.124
Reasons for addressing health and safety:					
..fulfilling legal obligation.				0.079	0.121
..fulfilling legal obligation (major reason).				-0.033	0.271
..meeting expectations from employees or their representatives.				-0.092	0.129
..maintaining or increasing productivity.				0.033	0.183
..maintaining or increasing productivity (major reason).				0.027	0.116
..maintaining the organisation's reputation.				-0.040	0.302
..avoiding fines and sanctions from the labour inspectorate.				0.058	0.083
..avoiding fines and sanctions from the labour inspectorate (major reason).				0.003	0.881
Difficulties in addressing health and safety:					
..a lack of time or staff.				0.010	0.643
..a lack of time or staff (major difficulty).				-0.014	0.423
..a lack of money.				-0.002	0.935
..a lack of money (major difficulty).				0.002	0.899
..a lack of awareness among staff.				0.012	0.543
..a lack of awareness among staff (major difficulty).				-0.005	0.826
..a lack of awareness among management.				-0.040	0.051
..a lack of awareness among management (major difficulty).				-0.018	0.505
..a lack of expertise or specialist support.				0.006	0.766
..a lack of expertise or specialist support (major difficulty).				-0.023	0.296
..the paperwork.				-0.013	0.532
..the paperwork (major difficulty).				0.014	0.452
..the complexity of legal obligations.				0.012	0.564
..the complexity of legal obligations (major difficulty).				0.006	0.738

Source: Panteia based on ESENER-19

Significant at: ** p<0.01; * p<0.05. All explanatory variables are dummy variables (0=no. 1=yes).

Table B 14: OLS regressions on psychosocial OSH management practices indicator for total EU-27 economy, EU-27, 2019 (%)

Variable	Model 1		Model 2		Model 3		Model 4	
Adjusted R square of the model:	0.14		0.195		0.331		0.340	
Number of valid observations:	3382		3339		2460		2201	
	B	**Sign.**	**B**	**Sign.**				
Constant	0.360 **	0.000	0.294 **	0.000	0.162 **	0.000	0.117 *	0.015
validcount_dummy_6	0.096 **	0.002	0.125 **	0.000	0.143 **	0.000	0.130 **	0.003
validcount_dummy_7	0.003	0.842	0.004	0.768	-0.007	0.644	-0.017	0.367
Technical, economic, social and organisational factors								
Use of digital technologies:								
..use of personal computers.	-0.013	0.333	-0.015	0.232	0.032 *	0.022	0.016	0.304
..use of laptops, tablets, smartphones or other mobile computer devices.	0.059 **	0.000	0.056 **	0.000	0.038 **	0.005	0.046 **	0.001
..use of robots that interact with workers.	-0.005	0.804	-0.014	0.484	0.005	0.799	0.002	0.912
..machines, systems or computers determining content or pace of work.	0.049 **	0.000	0.044 **	0.000	0.038 **	0.005	0.029 *	0.038
..machines, systems or computers monitoring workers performance.	0.039 **	0.009	0.026	0.069	0.029	0.057	0.025	0.115
..wearable devices.	0.041 *	0.028	0.036 *	0.046	0.019	0.301	0.023	0.243
Economic situation of the establishment good or quite good.	0.023 *	0.019	0.025 **	0.008	0.022 *	0.038	0.021	0.062
Establishment size classes (default size class is 5-9 employees):								
..10-19 employees.	0.065 **	0.000	0.046 **	0.000	0.029 *	0.026	0.020	0.149
..20-49 employees.	0.043 **	0.001	0.002	0.901	-0.008	0.552	-0.019	0.207
..50-99 employees.	0.101 **	0.000	0.041 *	0.013	0.031	0.078	0.016	0.403
..100-149 employees.	0.110 **	0.000	0.037	0.119	0.034	0.167	0.052 *	0.047
..150-249 employees.	0.103 **	0.000	0.026	0.294	0.024	0.357	0.015	0.589
..250 or more employees.	0.152 **	0.000	0.067 **	0.001	0.080 **	0.000	0.073 **	0.002
Establishment is single organization.	-0.091 **	0.000	-0.070 **	0.000	-0.038 **	0.001	-0.041 **	0.005
Share of employees aged 55+ (default category is 1 – 25%):								
..none.	0.015	0.228	0.013	0.260	0.016	0.223	0.022	0.110
..25-50%.	-0.016	0.157	-0.023 *	0.031	-0.034 **	0.003	-0.030 *	0.015
..more than 50%.	-0.050 **	0.007	-0.048 **	0.007	-0.024	0.217	-0.022	0.286
Are there persons working in the establishment who are not on the payroll?	0.042 **	0.000	0.037 **	0.000	0.015	0.124	0.019	0.077
Do any employees have difficulties understanding the language?	0.008	0.616	0.012	0.417	-0.002	0.897	-0.002	0.917

Variable	Model 1		Model 2		Model 3		Model 4	
Do any employees regularly work from home?	0.085 **	0.000	0.080 **	0.000	0.068 **	0.000	0.082 **	0.000
Do any employees work elsewhere outside the premises of the establishment?	-0.002	0.784	0.000	0.993	0.007	0.468	0.003	0.776
Does this establishment belong to the public sector?	0.023 *	0.044	0.000	0.967	-0.014	0.320	-0.004	0.798
Employee representation								
Employee representation: general?			0.085 **	0.000	0.069 **	0.000	0.076 **	0.000
Employee representation: health and safety?			0.097 **	0.000	0.089 **	0.000	0.082 **	0.000
Additional explanatory variables								
Types of risks:								
..lifting or moving people or heavy loads.					0.030 **	0.003	0.037 **	0.002
Psychosocial risks:								
..having to deal with difficult customers, patients, pupils etc.					0.049 **	0.000	0.057 **	0.000
PSR risks are easier to address than other risks.					0.030 *	0.022	0.033 *	0.018
Reasons for addressing health and safety:								
..meeting expectations from employees or their representatives (major reason).					0.118 **	0.000	0.111 **	0.000
..maintaining the organisation's reputation (major reason).					0.061 **	0.000	0.058 **	0.000
Difficulties in addressing health and safety:								
..a lack of time or staff.					0.037 **	0.000	0.049 **	0.000
..a lack of awareness among management (major difficulty).					-0.058 **	0.000	-0.040 *	0.026
Country (default is Ireland).					yes		yes	
Sector (default is Nace-Q HeSCare).					yes		yes	
Non-significant variables								
Types of risks:								
..repetitive hand or arm movements.							0.019	0.091
..prolonged sitting.							0.000	0.997
..tiring or painful positions.							-0.001	0.925
..loud noise.							-0.023	0.061
..heat, cold or draught.							0.005	0.644
..risk of accidents with machines or hand tools.							-0.015	0.243
..risk of accidents with vehicles in the course of (not on the way to/from) work.							0.011	0.347
..chemical or biological substances in the form of liquids, fumes or dust.							0.002	0.837
..increased risk of slips, trips and falls.							-0.005	0.676
Psychosocial risks:								
..time pressure.							0.015	0.158

Variable	Model 1	Model 2	Model 3	Model 4	
..poor communication or cooperation within the organisation.				-0.012	0.325
..fear of job loss.				0.021	0.112
..long or irregular working hours.				0.015	0.153
Visit by labor inspectorate in last 3 years.				0.003	0.801
Establishment is subsidiary site.				-0.007	0.710
PSR risks are more difficult to address than other risks.				-0.002	0.848
Reasons for addressing health and safety:					
..fulfilling legal obligation.				0.008	0.794
..fulfilling legal obligation (major reason).				0.010	0.601
..meeting expectations from employees or their representatives.				-0.001	0.968
..maintaining or increasing productivity.				0.005	0.807
..maintaining or increasing productivity (major reason).				0.016	0.235
..maintaining the organisation's reputation.				0.006	0.823
..avoiding fines and sanctions from the labor inspectorate.				0.007	0.757
..avoiding fines and sanctions from the labor inspectorate (major reason).				-0.026	0.082
Difficulties in addressing health and safety:					
..a lack of time or staff (major difficulty).				-0.012	0.336
..a lack of money.				-0.009	0.442
..a lack of money (major difficulty).				-0.005	0.753
..a lack of awareness among staff.				0.007	0.602
..a lack of awareness among staff (major difficulty).				0.007	0.618
..a lack of awareness among management.				-0.009	0.531
..a lack of expertise or specialist support.				-0.015	0.247
..a lack of expertise or specialist support (major difficulty).				-0.014	0.400
..the paperwork.				0.013	0.346
..the paperwork (major difficulty).				0.022	0.115
..the complexity of legal obligations.				0.016	0.253
..the complexity of legal obligations (major difficulty).				-0.023	0.080

Source: Panteia based on ESENER-19

Significant at: ** p<0.01; * p<0.05. All explanatory variables are dummy variables (0=no. 1=yes)

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European Agency
for Safety and Health at Work
Santiago de Compostela 12
48003 Bilbao, Spain
E-mail: information@osha.europa.eu

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