European Agency for Safety and Health at Work



Mental health challenges in the EU health and social care sector during COVID-19: strategies for prevention and management

Literature Review

European Agency for Safety and Health at Work

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Table of Contents

List of Tables

List of Figures

List of Acronyms

BBMIC	Breath-body-mind therapy Introductory course
BH	Butterfly hug
CI	Confidence intervals
EFTA	European Free Trade Association
EMDR	Eye movement desensitisation and reprocessing
EMR	Electronic medical record
EU	European Union
GRADE	Grading of Recommendations, Assessment, Development, and Evaluation
ICON	Imperial COVID Communications Network
ICU	Intensive Care Unit
MBSR	Mindfulness-based stress reduction
MERS	Middle East respiratory syndrome
MHCRT	Mental Health Crisis Response Team
MHL	Mental Health Liaison
NACE	Statistical Classification of Economic Activities in the European Community
NH	Nursing home
OSCaRS	Online Supportive Conversations and Reflection Sessions
OSH	Occupational safety and health
PRESS	Peer Review of Electronic Search Strategies
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PTSD	Post-traumatic stress disorder
RCoA	Royal College of Anaesthetists
SARS	Severe acute respiratory syndrome
STEP	Support Tools for Emergency Psychology
WHO	World Health Organisation

Executive Summary

Context

The COVID-19 pandemic led to psychosocial risk stressors and mental health challenges for workers across many settings, with the human health and social care activities (HeSCare) sector believed to be one of the most highly affected.

Previous attempts to evaluate the HeSCare sector's burden of mental health problems resulting from work during the COVID-19 pandemic include studies conducted in very heterogeneous settings and geographical regions, often outside Europe. Due to contextual differences, these previous studies, which primarily include evidence from China and developing countries, may only partially apply to the European Union (EU). This underscores the need for region-specific assessments of the burden of mental health problems and the identification of helpful occupational safety and health (OSH) interventions applicable to the EU context regarding the prevention and management of psychosocial risks and mental health in the HeSCare sector in the context of pandemics.

This report evaluates the prevalence of work-related mental health conditions resulting from the COVID-19 pandemic in the HeSCare sector in the EU. We present available good practices, interventions and recommendations from the COVID-19 pandemic period, to address work-related psychosocial risk factors and mental health in this sector. The aim of this detailed assessment of both the burden of the problem and the proposed workplace initiatives to tackle it is to provide comprehensive and helpful guidance to policymakers and practitioners that will increase resilience and improve the preparedness of the sector for future health emergencies.

Methodology

We conducted a systematic review of the prevalence of mental health outcomes in the EU health and social care workers during the pandemic, as well as in-depth searches and contacted professionals in the field to identify examples of good practices or interventions and recommendations issued for the sector by recognised authoritative sources.

The scope of the prevalence systematic review is to quantify the mental health burden in the HeSCare sector in the EU from the start of the pandemic in 2020 until mid-2023, and to identify interventions and recommendations published in the peer-reviewed literature. The mental health outcomes studied included anxiety, depression, acute stress, post-traumatic stress disorder (PTSD), insomnia and sleep disturbances, distress, burnout and suicidal thoughts. The systematic review complies with rigorous conduct and reporting methodologies. The studies of interest were identified through comprehensive and systematic search strategies across major bibliographic databases using predefined eligibility criteria. We critically appraised studies for quality and representativeness using the Joanna Briggs Institute Tool for prevalence studies. We conducted study selection and data extraction in duplicate and obtained pooled prevalence estimates across the EU from meta-analyses. Estimates of the prevalence of mental health problems were also examined by country, age, sex and gender, and in specific subgroups of workers considered potentially at increased risk of mental health problems (groups of professional profiles, frontline workers, and work setting). We rated all the evidence to inform the certainty of each prevalence estimate, using the GRADE approach.

Existing good practices and recommendations in the sector were identified through comprehensive scientific and grey literature searches, alongside a Delphi consultation with 59 relevant stakeholders across Europe as well as with non-EU experts, representing a wide range of organisations in the HeSCare sector. They were asked to provide practical examples at workplace level regarding the identification, assessment, prevention or mitigation of work-related psychosocial risk factors and mental health in the HeSCare sector, focusing on preparedness for future health emergencies. This report presents a selection of identified good practices or workplace interventions, with broad geographical coverage and various scopes (organisational, individual-level and mixed interventions) that can be put into practice by stakeholders across the sector.

Results

In total, 113 studies from 22 countries in the EU were included to assess the prevalence of mental health problems in the HeSCare sector during the COVID-19 pandemic (see *Annex 1 — Systematic review studies*[1]). The estimated EU-pooled prevalence rates observed in this report were as follows:

- Anxiety: The overall prevalence of anxiety (considering any level, from mild to severe forms) was 37%. This estimate was derived from data from 41 studies including 35,868 participants. When considering only anxiety of moderate and severe intensity, the estimated prevalence was 21%.
- Depression: The overall prevalence of depression was 33%, based on 41 studies including 44,001 participants. When considering only depression of moderate-to-severe intensity, the overall estimated prevalence was 20%.
- Acute stress: The overall prevalence of acute stress when classified as any form of stress was 44%, based on data from 22 studies including 19,575 participants. When considering acute stress of moderate-to-severe intensity, the overall prevalence was 36%.
- Post-traumatic stress disorder: The prevalence of PTSD across Europe was 24%, based on 30 studies including 46,867 participants.
- Psychological distress: The prevalence of distress was 46%, based on 14 studies including 16,486 participants.
- Insomnia: The prevalence of moderate-to-severe insomnia and sleep disturbances was 36%, based on 11 studies including 13,086 participants.
- Burnout: The prevalence of burnout was 38%, based on 16 studies including 16,128 participants.
- Suicidal thoughts: The prevalence of suicidal thoughts was 11%, based on 6 studies including 17,495 participants.

These findings were based on studies identified in 22 EU countries, but comprehensiveness across countries varied and in some EU countries, no eligible studies were identified. A significant degree of variability was observed across the included studies, leading to higher imprecision in the pooled prevalence estimates. This variability between studies can be explained by differences in their design and conduct: in the populations studied, the characteristics of the countries and their healthcare systems, the time periods when the studies were conducted (for example, different pandemic waves, the COVID versus the post-COVID period until 2023), or the validated instruments and definitions used to assess mental health outcomes.

Analysis of specific professional profiles in the HeSCare sector suggests higher prevalence rates of mental health problems in nurses, residents, aides and emergency medical technicians (EMTs). Further assessment of impacts on specific subpopulations of workers shows heterogeneous findings. Frontline workers, broadly defined as those potentially in closer contact to the virus, consistently show higher prevalence rates of psychological burden across all mental health conditions, particularly insomnia, anxiety and burnout. Female workers tend to show a higher degree of psychological burden compared to male workers across the considered mental health conditions, particularly in distress, insomnia or sleep disturbances, and acute stress. Professionals working in hospital settings seem to have a higher prevalence of mental health problems than professionals at nursing homes, and a similar prevalence to those in general practice settings. However, the number of identified studies in nursing homes and general practices is very limited. Results by age are mixed, but younger professionals may have a higher prevalence of moderate and severe mental health outcomes.

The grey literature review and the Delphi study allowed us to screen a large volume of evidence, including 138 documents on workplace interventions and examples of good practices, alongside 144 documents containing recommendations focusing on work-related psychosocial risk factors and mental health prevention and management in the HeSCare sector during the pandemic (see *Annex 2 —*

[1] *Annex 1 – Systematic review studies* is available under the Related Resources section at: https://osha.europa.eu/en/publications/mental-health-challenges-eu-health-and-social-care-sector-during-covid-19-strategies-prevention-and-management

Collection of good practices and recommendations[2]). We identified and classified 27 different modalities of interventions, most commonly counselling, mindfulness practices and digital resource utilisation, to support professionals. Measures such as resting rooms or hubs, organisational adjustments and psychoeducation were also prevalent. Interventions/good practices were classified into three broad categories:

- Cognitive behavioural interventions: Aim to modify participants' thoughts, feelings and behaviours in stressful situations.
- Physical and mental relaxation: Focus on reducing stress-induced agitation and promoting mental calmness.
- Organisational interventions: Altering work environments, methods or resources to improve workplace conditions.

Following detailed searches and screening of documents, 109 recommendations were included addressing psychological well-being and mental health in the sector. These were further classified into three main categories, according to their level of action or focus: organisational (62 recommendations), individual (24 recommendations) or outcome specific (23 recommendations). Each of these includes several subcategories:

- Organisational: General support, resource management, communication, shifts and workload, leadership, organisational peer support, psychological support and stress management, team self-care and well-being measures, economic support and job stability, preparation for future crisis, evaluation of interventions, and community support.
- Individual: Peer support, psychological support, stress management, self-care, and wellbeing measures.
- Mental health outcome focused: Burnout, PTSD, isolation and quarantine, social stigma and moral injury.

Discussion

This is the first systematic assessment of the burden of mental health outcomes on EU health and social care workers working during the COVID-19 pandemic. It also provides practical guidance on preventing and managing psychosocial risks and mental health problems in health and social care workers during epidemics, and compiles and classifies existing useful recommendations for the sector.

The study sheds light on the high prevalences for a range of mental health problems in the EU health and social care workforce including anxiety, depression, acute stress, PTSD, distress, insomnia, burnout and suicidal thoughts. Although all workers in the sector reported high rates of mental health problems, this study identifies specific subgroups of workers in the sector who may experience more psychosocial risk factors and who appear to suffer from a higher prevalence of a range of mental health problems. These include professionals at the frontline, specific professional profiles (nurses, residents, aides and EMTs), hospital workers, young professionals and female workers. The identification of workers at higher risk for certain mental health conditions may help support more targeted work-related prevention and management initiatives.

This project identifies knowledge gaps in certain countries, work subsectors (social work with and without accommodation) and professional profiles within the sector (i.e. cleaning staff) with little or no studies available. It highlights the need to rigorously and systematically evaluate those gaps, as well as to assess the benefits and costs of the different interventions identified. The identification of good practices shows that, during the COVID-19 pandemic, sound efforts were made across EU countries at workplace level to implement and evaluate interventions to address psychosocial risks and the burden of mental health among HeSCare professionals; and numerous recommendations have been issued that could prove useful for future health crises.

[2] *Annex 2 – Collection of good practices and recommendations* is available under the Related Resources section at: https://osha.europa.eu/en/publications/mental-health-challenges-eu-health-and-social-care-sector-during-covid-19-strategies-prevention-and-management

We present a collection of informative best practices in this report, for managers and professionals to choose those most appropriate or feasible that can be readily applied or tailored to each specific context. To do this, we identify facilitators and critical aspects for potential transfer to other workplaces and settings, giving insight into the wide range of possibilities for intervening at the workplace and helping workers in difficult conditions. This collection will serve as essential input when addressing psychosocial risks and promoting mental wellbeing in the HeSCare sector, and it should be widely disseminated.

In conclusion, this project represents a necessary step towards understanding and addressing the psychosocial and mental health challenges faced by health and social care professionals in the EU during COVID-19 times. In turn, this understanding should help inform future research and public health strategies on the gaps to be addressed and the support this sector needs in challenging circumstances that may become more prevalent under current social and climatic predictions, thereby increasing its resilience and preparedness for future pandemics.

1 Introduction

1.1 Background

The human health and social work activities (HeSCare) sector plays a pivotal role in the European Union (EU) workforce landscape. The Statistical Classification of Economic Activities in the European Community (NACE) classifies the HeSCare sector under the code Q, containing three divisions: NACE Q86 (Human health activities including hospital, general and specialist medical practice activities, and dental practices), NACE Q87 (Residential care activities including nursing care activities, residential care activities for mental retardation, mental health and substance abuse, and residential care activities for the elderly and disabled), and NACE Q88 (Social work activities without accommodation, including activities for the elderly and disabled, and other activities without accommodation).

The HeSCare sector is one of the largest in the EU. It contributes substantially to the region's social fabric and wellbeing and accounts for approximately 11% of its workforce, with about 78% of female workers[1 2]. According to the Eurostat Labour Force Survey 2022, more than 21 million people are employed in the HeSCare sector, of which more than 12 million in hospitals.

Social partnership and free trade union activity are key drivers in the sector to improve working conditions and salaries, as well as staff qualification, by way of collective agreements. At EU level two sectoral social dialogue committees covering the sector exist. “Hospitals and healthcare” (European Federation of Public Service Unions (EPSU) for workers and European Hospital and Healthcare Employers Association (HOSPEEM) for employers’ organisations)[3] and “social services” (European Federation of Public Service Unions (EPSU) representing the European workers of the sector and Social Employers and the European Council of Regions and Municipalities (CEMR) representing European employers in social services)[4].

Data recently published by the European Agency for Safety and Health at Work (EU-OSHA) show that human health and social care workers report high rates of post-COVID mental health problems, more so than professionals in other sectors of activity, and there appears to be a concerning trend of increasing exposure to work-related psychosocial risk factors in this sector[3-5]. Evidence shows that the onset of the COVID-19 pandemic resulted in a range of mental health problems in the general population. In 2020, the World Health Organisation (WHO), aligned with the Global Burden of Disease (GBD 2020) and using statistical modelling from survey data, estimated that the COVID-19 pandemic was associated with a 27.6% increase in the global prevalence of depression, a 25.6% increase in anxiety disorders, 137.1 additional disability-adjusted life years (DALYs) per 100,000 inhabitants for depression, and 116.1 DALYs per 100,000 inhabitants for anxiety[6]. The most significant increases in mental health problems were observed in countries highly affected by COVID-19. Mental health in females and younger adults appeared to have deteriorated more than in males and older people[6 7]. Nevertheless, these data were focused on the general population, and the nature of data from statistical modelling might have overestimated or underestimated the prevalence rates.

In the occupational context, and in particular in the HeSCare sector, the impact of the COVID-19 pandemic has further exacerbated some existing work-related psychosocial risks, leading to a severe increase in cases of mental health problems, as reported in the literature[4 8]. The pandemic has had a profound impact both on medical staff and on non-medical staff working alongside them. An increase in workload, isolation, lack of resources, fear of infecting themselves and their loved ones, witnessing the passing of patients daily, and social stigma are some of the factors that exacerbated the strain on mental health to the notable detriment on the wellbeing and mental health of the workforce in the sector[9].

Several published evidence syntheses (systematic reviews, rapid reviews, umbrella reviews and scoping reviews) have assessed the prevalence of mental health outcomes and psychosocial risk factors during the pandemic in the HeSCare sector globally. However, they mainly included studies conducted in China and in developing countries outside the EU[9-13]. Therefore, the applicability of their findings to the EU setting is limited, given the differences between economic regions regarding

[3] Cross-industry and sectoral social dialogue - Hospitals and healthcare. Available at: https://ec.europa.eu/social/main.jsp?catId=480&langId=en&intPageId=1838

[4] Commission decision setting up the European social dialogue committee for social services. Available at: https://ec.europa.eu/social/main.jsp?langId=en&catId=89&furtherNews=yes&newsId=10630

occupational safety and health (OSH), healthcare systems and infrastructure, labour markets, the impact and country response to the COVID-19 pandemic, as well as cultural and socioeconomic factors. In addition, some syntheses consider other conditions besides COVID-19, while others focus on the general population[14 15], do not limit their eligibility criteria to population-representative samples[6], or focus on specific professional profiles such as nurses or hospital staff[16 17].

Adverse psychosocial conditions at work have the potential to affect the mental or physical well-being of workers due to the interaction between the intrinsic demands of the job and the individual's capacity to cope with them. Psychosocial risk factors may stem from different aspects of the work environment such as design of the work tasks, organisation, management and social context. When these factors are not adequately addressed, they can lead to adverse health outcomes such as stress, anxiety, depression or burnout[18 19]. The HeSCare sector in particular is notorious in this sense: given the characteristics of their daily work, professionals can be exposed to high emotional demands, making them more susceptible to the consequences of constant exposure to psychosocial risk factors in the workplace[9 20].

Several organisations and institutions recognised an urgent need during the COVID-19 pandemic to develop workplace interventions and good practices to support the wellbeing of workers in the HeSCare sector, especially for frontline staff. Many recommendations and interventions have been proposed to manage the mental health and psychosocial burden of COVID-19 in healthcare professionals[21 22]. However, empirical evidence on the effectiveness of many of these recommendations and interventions is still limited or absent[22], and a thorough assessment of the real-world implementation and impact of the proposed interventions is needed.

In this study, we conduct a formal and systematic assessment of the prevalence of mental health problems (anxiety, depression, acute stress, post-traumatic stress disorder (PTSD), psychological distress, sleep disturbances, burnout and suicidal thoughts) in EU health and social care workers. This takes the form of a systematic review of evidence including a meta-analysis, accompanied by in-depth identification, assessment and categorisation of published recommendations and real-world interventions conducted in the COVID-19 period, tackling psychosocial risks and/or poor mental health in the HeSCare sector.

1.2 Objectives

The two complementary objectives of this research were:

- To systematically assess the overall burden of mental health problems in the HeSCare sector across the EU during the COVID-19 pandemic, including an assessment of the mental health impacts on specific categories of workers.
- To identify and examine good practices/workplace interventions, and present in a structured way recommendations for addressing work-related psychosocial risk factors and mental health in the HeSCare sector, with a focus on preparedness for future health emergencies, to facilitate their uptake by the various stakeholders in the sector.

2 Methodological approach

2.1 Systematic review of mental health outcomes

2.1.1 Specific objectives and framework

We conducted a systematic assessment of the published literature on the prevalence of work-related mental health outcomes in the HeSCare sector across the EU during the COVID-19 pandemic, including anxiety, depression, acute stress, distress, sleep disturbances, post-traumatic stress disorder, burnout and suicidal thoughts.

The methodological approach used is a systematic review of prevalence with meta-analysis. We conducted and reported this systematic review following established methodological guidelines for conducting prevalence reviews and in compliance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 statement[23-25]. Moreover, the work was informed by current methodological guidance to consider equity and sex or gender when conducting systematic reviews[26 27]. The protocol for this systematic review was developed upfront and reported following well-established PRISMA-P guidelines[28], and it was registered in the International Prospective Register of Systematic Reviews (PROSPERO) public repository (https://www.crd.york.ac.uk/prospero/ protocol CRD42023473930).

2.1.2 Research question and eligibility criteria

The systematic review answered the following research question:

'Among health and social care workers in the EU, what is the prevalence of mental health outcomes related to their professional activity during the COVID-19 pandemic?'

The approach that was used to specify the healthcare question defining the systematic review is the Condition-Context-Population (CoCoPop) framework, which was further translated into the following review eligibility criteria[25]:

Condition: Studies describing selected work-related mental health outcomes. Both symptoms and disorders were included based on previously published literature in the field[10 29], but only when diagnosed using validated clinical scales or based on a clinical interview with a health professional. The condition should have been related to the target population's professional activity. The mental health outcomes studied were anxiety, depression, acute stress, psychological distress, sleep disturbances, post-traumatic stress disorder (PTSD), burnout and suicidal thoughts. Brief definitions of each condition are provided in a glossary of terms (Appendix A). Studies were considered when categorical prevalence outcomes were reported in the articles, allowing for a clear dichotomisation of participants into the presence or absence of the mental health problem considered. Dichotomous outcomes were considered using the thresholds by the original authors to dichotomise mental health outcomes using quantitative scales (for example, the number of participants with stress identified by PSS-10 values over a specific threshold). If a representative study reported mental health outcomes as resulting scores of validated scales or quantitative assessments (for example, mean or median scores) with no recodification into categorical or dichotomous mental health outcome variables, the corresponding authors were contacted for further data, if available.

Context: Published studies conducted in the EU-27, where the prevalence of the outcomes of interest in health and social care workers was explicitly assessed during the COVID-19 pandemic as officially declared by WHO (between January 2020 and May 2023).

Population: The included studies involved workers of legal age to work in the EU in the HeSCare sector, of any sex, gender and ethnicity, actively employed in any EU country during the COVID-19 pandemic. Studies in the following professions were included: physicians, nurses, midwives, public health professionals, technicians, personal care workers, and community health workers[10]. Support workers were included, such as cleaners, drivers, cooks, administrators, social workers, and other professional groups in the health and social care sector. Residents and trainees were included insofar as they were developing professional activities in the sector under study. Studies conducted in health careers undergraduate students were excluded.

Study design: Published peer-reviewed observational research studies with cross-sectional or cohort designs. We included only 'population-based' studies, that is, those targeting and systematically recruiting a clearly defined sample representative of a geographic population (for example, all nurses registered in a country or geographic region), to achieve target population representativeness. For cohort studies, only baseline data were extracted. The studies should have reported numerical estimates of the prevalence of the outcome, either percentages of mental health outcomes with corresponding 95% confidence intervals (CIs) or raw numbers of affected and non-affected among the participants. Eligibility was not restricted by the language of publication; all studies with an English summary were eligible, regardless of the language of publication of the full text.

Exclusion criteria: Articles without original primary data (overviews; literature, scoping and systematic reviews; opinion articles, editorials and commentary papers), as well as articles focusing on the infection rates of healthcare and social care staff. Studies reporting online, self-administered surveys without measurement scales, surveys with snowball recruitment, or other recruitment methods that do not guarantee minimum representativeness of the target population (for example, professionals from a hospital). Articles on other infectious disease outbreaks (for example, severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS) and Ebola). Articles focusing on informal carers (for example, family members or volunteers) or students. Multi-country studies, if no disaggregated data for the EU countries were reported (e.g. a survey of Singapore and Italy with no disaggregated data for Italy only). Purely qualitative studies, such as thematic, phenomenological, or grounded theory approaches. Preprint studies.

2.1.3 Search strategy

Systematic and comprehensive searches were designed according to current standards for conducting systematic reviews[30] and were reported in compliance with PRISMA-S statement guidance[31].

An information specialist designed specific search strategies for MEDLINE (accessed via PubMed) and EMBASE databases, aiming to maximise sensitivity and maintain reasonable precision. We defined terms from the controlled vocabulary from each database and text terms (for example, synonyms, spelling variants and truncations) related to the main components of the research question.

The searches in the bibliographic databases were conducted from inception to the second week of July 2023. In line with the evidence-based guideline statement for Peer Review of Electronic Search Strategies (PRESS) for systematic reviews, a second independent information specialist counter-checked the search strings[32]. The strategy was adapted to the requirements and controlled the vocabulary of the rest of the intended sources. To increase the sensitivity of the search results to the type of study design that answered the review question, no methodological filters were applied. References from the studies deemed relevant to the research question were checked to identify potential new studies fulfilling the inclusion criteria.

We used the reference manager software EndNote X.20[33] to create a database and manage the search results. Duplicate studies (records published in the same journal, volume, number and pages) were automatically removed, producing a final database with unique records. The literature search strings for MEDLINE and EMBASE are presented in Appendix B.

2.1.4 Study selection and evidence appraisal

The EndNote X20 database containing the search results to the screening software Covidence[34] to manage the entire eligibility process. A single reviewer screened the search results in Covidence, based on the title and abstract (Level 1 screening). Then, all the references initially selected as potentially eligible proceeded to the full-text screen stage (Level 2 screening). In this second screening phase, two reviewers independently confirmed eligibility, based on their appraisal of the full text of each relevant article using the following criteria, in order of relevance: study conducted in the EU-27, COVID-19 focused, mental health outcomes reported in healthcare or social care workers, cross-sectional or cohort design, population-based study (survey clearly targets population and looks to recruit a representative sample), validated scales used to measure mental health outcomes, dichotomous outcomes and numerical prevalence data available. Reviewers resolved disagreements by reaching a consensus following discussion.

Authors were contacted to obtain more information on sample representativeness, outcome assessment and prevalence data in the following cases: a) whenever an article reported unclear recruitment, b) whenever an article only informed quantitative data without categorisation, or c) whenever an article provided unclear or ambiguous information regarding eligibility criteria and cut-off points of scales to diagnose outcomes. A PRISMA flow chart was created to document all the eligibility processes described here, including the reasons for excluding studies at the full-text stage.

After all reviewers had conducted a pilot data extraction test and the criteria had been harmonised, one reviewer extracted relevant data from eligible studies on their main characteristics using a pretested extraction form. A different researcher cross-checked the extracted prevalence outcome data for accuracy. Measures of frequency of outcomes of interest were extracted or derived from the available study data. From eligible studies, data were extracted on study characteristics (for example, study period, geographic location, care sector, level of care, sample size, response rate and date of survey); participants' characteristics (for example, age, sex or gender, and professional profile); mental health outcomes and reported measure for the results; (prevalence estimates or raw data); and timeframe for the outcome prevalence.

The quality of all included studies was critically appraised using the Joanna Briggs Institute critical appraisal checklist for studies reporting prevalence data[25] (Appendix C), since no specific risk of bias tool has yet been developed for prevalence studies[23 35 36]. The checklist considers and assesses nine dimensions of quality in prevalence studies (sample frame, sampling type, sample size, appropriate description, sample coverage, identification of condition, reliability of assessment, statistical analysis and response rate), which are briefly described in Appendix A. Based on each individual assessment, a study may show high, unclear and low quality for each domain. A summary of the methodological quality of the included studies is presented as a traffic light chart (See Figure 3).

2.1.5 Synthesis of the evidence

The characteristics of all the included studies were summarised in a comparative table (see *Annex 1 – Systematic review studies*[5]), including bibliographic reference, country, type of recruitment, study setting and duration, professional profile, frontline status and number of participants. All possible prevalence measures were considered, including the following: i) point prevalence, an indicator of who has a disease at a certain point in time; ii) period prevalence, which indicates who has the disease within a given time frame; and iii) lifetime prevalence (a type of period prevalence), the proportion of a population who has ever had the disease of interest. All these measures of prevalence are expressed as percentages.

A meta-analysis (or statistical pooling of data across studies) was done to obtain average overall estimates of the prevalence of the selected mental health outcomes in the EU as well as overall estimates in specific subgroups of interest. If a single study reported results from more than one survey wave including different participants, each wave was considered as an independent dataset and included in the analysis. Only the baseline assessment was analysed in studies reporting longitudinal assessments on the same participants. When data from a study was reported in multiple publications for the same outcome, only the most comprehensive assessment was included in the analysis.

Meta-analyses of prevalence data were conducted regardless of between-study heterogeneity for all the considered mental health outcomes. Forest plot graphs for each mental health outcome studied are presented, displaying overall prevalence estimates from meta-analyses with 95% CIs. Forest plots show graphically how prevalence estimates vary between studies and across populations and countries.

We conducted meta-analyses of proportions with generalised linear mixed models under a random effects model[36 37]. Given the broad scope of the review, covering many countries, several professions, and different validated scales used to assess the same mental outcome of interest, a significant degree of clinical heterogeneity was expected across prevalence studies. Statistical heterogeneity was assessed with the indicator (I^2), although it has known limitations[38]. However, since the goal of the meta-

[5] *Annex 1 – Systematic review studies* is available under the Related Resources section at: https://osha.europa.eu/en/publications/mental-health-challenges-eu-health-and-social-care-sector-during-covid-19-strategies-prevention-and-management

analysis exercise in this systematic review was to estimate the global mental health burden in the EU, the approach was still considered an informative tool for data synthesis in this context[36].

Disaggregated findings were also presented by EU countries. Additionally, several preplanned subgroup analyses were conducted to report prevalence estimates considered potentially at higher risk of mental health problems. The following subgroup analyses were conducted by:

1. professional profile (ad hoc grouping, based on the profiles reported by the studies);
2. heightened exposure to COVID-19 infection (frontline workers);
3. work setting (hospital, primary care or nursing homes);
4. sex or gender (female or male);
5. age categories (elderly or younger).

Statistical analyses and graphs were obtained with Stata version 15[39].

Finally, the Grading of Recommendations, Assessment, Development, and Evaluation methodology (GRADE) approach was applied to assess the overall certainty of the body of evidence included in this systematic review for each critical mental health outcome. While there is no formal guidance for applying GRADE in systematic reviews of prevalence, there is some guidance on using GRADE for baseline risk or overall prognosis, which guided our assessments[40 41]. Details on the approach and the results of applying GRADE are included in Appendix H.

2.2 Identification of good practices and recommendations

2.2.1 Specific objectives and framework

We applied a multimodal search strategy to identify and examine good practices or workplace interventions, as well as to compile and present existing relevant recommendations for addressing work-related psychosocial risk factors and mental health in the HeSCare sector, with a focus on enhancing workers' resilience and preparedness for future health emergencies.

Specifically, the study goals were:

- to identify good practices or workplace interventions developed and implemented in response to the COVID-19 outbreak (during the pandemic or after), tackling psychosocial risks and promoting mental health in the HeSCare sector;
- to select and present in more detail some examples of workplace good practices or interventions of different nature identified in this study that are relevant and clearly described, and that can be put into practice by the various stakeholders in the sector;
- to compile and present available published recommendations by authoritative sources in a structured manner to support a good psychosocial work environment in the sector and to prevent adverse mental health outcomes, focusing on those addressing the unique risk factors, circumstances and challenges identified in the HeSCare sector.

2.2.2 Research question and eligibility criteria

This compilation of practical information answered the following research question, 'What are the current recommendations and ongoing practices for addressing psychosocial risks and mental health in the human health and social care activities sector (NACE Q86, with three divisions) during and after COVID-19, particularly with a focus on pandemic preparedness?'.

Any occupational group working in the above-mentioned sector of activity was included. Workers subcontracted through other companies (cleaning, maintenance, security, kitchen, and so on) were also included. Voluntary or informal carers (that is, family members) were outside this scope.

The focus of the searches was not restricted to EU and European Free Trade Association (EFTA) countries alone. Relevant examples in countries outside the EU were included, based on socioeconomic similarities, workers' protection and management approaches during the pandemic, and the well-recognised international impact of some of the non-EU institutions providing relevant information applicable to the European OSH context. Some of these countries were Australia, Canada, New Zealand and the United Kingdom.

Additionally, the good practices/workplace interventions included in the study were selected based on the following pre-established eligibility criteria:

- Intended to positively impact psychosocial risks and mental health at work in the HeSCare sector aiming at improving or adapting the work environment to the situation engendered by COVID-19.
- Interventions with active worker participation should be addressed to a minimum of 20 professionals and should have lasted at least 2 months. According to the hierarchy of prevention measures in OSH, collective protection or coherent overall prevention measures at the group level and those focusing on individual workers were included.
- Transferable, in such a way that they could be adapted, extrapolated, repeated or applied to other institutions and EU countries.
- They included some kind of evaluation of the implementation process and/or the results on improvement indicators regarding reducing psychosocial risks or improving workers' mental health. Evaluative mechanisms and methodologies used could be quantitative and/or qualitative. They could include pre-post evaluations using standardised and validated tools, evaluation of satisfaction and/or qualitative assessment during or after the intervention, and the number of participants.

Based on those criteria, examples of included good practices could be programmes at national or regional level, or actions carried out at workplace level in companies of different sizes, with active worker participation, addressing challenges and specific risks identified in this sector related to mental health, and considering groups of workers in the sector at potentially increased risk of suffering psychosocial risks (that is, temporary workers, minorities, certain occupational groups such as nursing aides, and so on.). Where data allowed for such conclusions, the effectiveness of such interventions and their limitations and barriers to success were discussed.

2.2.3 Sources of information

This study identified good practices/workplace interventions and recommendations through extensive multimodal searches of the literature from early 2020 until March 2024.

Searches were primarily focused on work published in English. If relevant, works published in Dutch, French, German, Italian, Finnish or Spanish were also included. The approach included systematic and grey literature searches, consulting experts through a Delphi procedure, and reaching out to networks of peer practitioners in the field, as described below.

- **Literature searches: Grey literature and peer-reviewed publications**

Grey literature is an essential source of information, particularly for this type of practical knowledge, as it is rapidly produced and disseminated, and the available information can be more detailed than in journal articles. It is more likely to be industry or sector focused than academic: this offers valuable insight into work in a chosen profession and facilitates obtaining geographically discrete information, for example, the local area. It can include documents produced at all levels of government, academia, business and industry. It can be found in print and electronic formats, protected by sufficient intellectual property rights to be collected and preserved by library holdings or institutional repositories.

The sources and institutions included in the scope of this report included national governments, EU institutions or international bodies, OSH and sectoral organisations, recognised public health institutes or bodies, trade union and employer organisations, non-governmental organisations (NGOs), and so on.

In addition to documents and publications, newsletters, working papers, bulletins and even online resources (for example, videos) were searched and potentially used if referenced by the authors.

The following terms were used in the grey literature searches: 'healthcare workers', 'hospital staff', 'social workers', 'social care', 'primary care', 'elderly care', 'long-term care', 'COVID-19 pandemic', 'psychosocial risks', 'mental health', 'wellbeing', 'interventions', 'good practice', 'guidelines' and 'recommendations'.

A comprehensive scientific literature search in electronic databases was done, complementary to the grey literature searches. The results identified for the systematic review of the prevalence of mental health outcomes particularly helped identify recommendations, practices and interventions that met the study eligibility criteria and were published in indexed scientific journals findable in MEDLINE and EMBASE. The search strings are published in Appendix B.

- **Delphi strategy and direct contact with experts**

The preliminary list of information sources and the grey literature search were refined using a Delphi strategy approach. The Delphi technique is a well-established method for answering a research question by identifying a consensus view among subject experts[42 43]. It is based on a series of 'question rounds' (two rounds were used), where experts are asked their opinions on a particular issue (by voting), usually online.

A multidisciplinary group of experts from various institutions across EU countries was identified, contacted via e-mail and involved in the online Delphi approach. The aim was to compile a comprehensive and agreed list of target institutions, companies and experts to further supplement and inform the grey literature searches. The questions for the second round of the Delphi survey were partially based on the answers from the first round, allowing the study to evolve in response to earlier replies from the participants.

A simple, structured survey was distributed among the selected Delphi group. The survey was generated using Microsoft Google Forms and listed sources of evidence identified by previous research. Experts were asked to rate each of the already identified sources as 'most relevant', 'somewhat relevant', or 'not relevant', according to their opinion on how well the information available from the given source could fit the objectives of the research. An 'unknown' answer was also available. The questionnaire included a section inviting the experts to list other organisations (and their websites) if not previously identified. We updated the questionnaire after the first round of replies, excluding the organisations classified by at least 75% of the experts as 'not relevant' for the second round, and adding the new suggested sources so the entire group could review them in the second round.

In total, 14 experts from different areas of expertise and countries reviewed and completed the list of reliable sources. Two rounds were considered enough to reach conclusions from a consensus list of sources. The results of the Delphi strategy helped identify additional relevant organisations, groups, institutions and/or experts formulating recommendations or implementing workplace good practices to tackle psychosocial risks and mental health in the healthcare and social care sector. We also asked the experts to report on examples of good practices they knew of and provide information on workplaces, such as hospitals or other sites, where successful good practices and interventions were implemented in the HeSCare sector. Following this approach, a 'snowballing sample' was generated, in which the information about institutions, organisations, groups and examples of good practices meeting the criteria above was continuously updated so that enough data could be gathered.

Finally, as an additional complementary source of information, the authors' professional networks (when available) were used to contact peers working in hospitals, primary care centres, and residential and social care activities in Spain and other European countries. This approach was useful for gathering more insight into relevant material that otherwise would have not been identified, and for finding more details regarding interventions of interest already identified. A total of 13 direct contacts by e-mail were made for this purpose.

3 Results

3.1 Systematic review

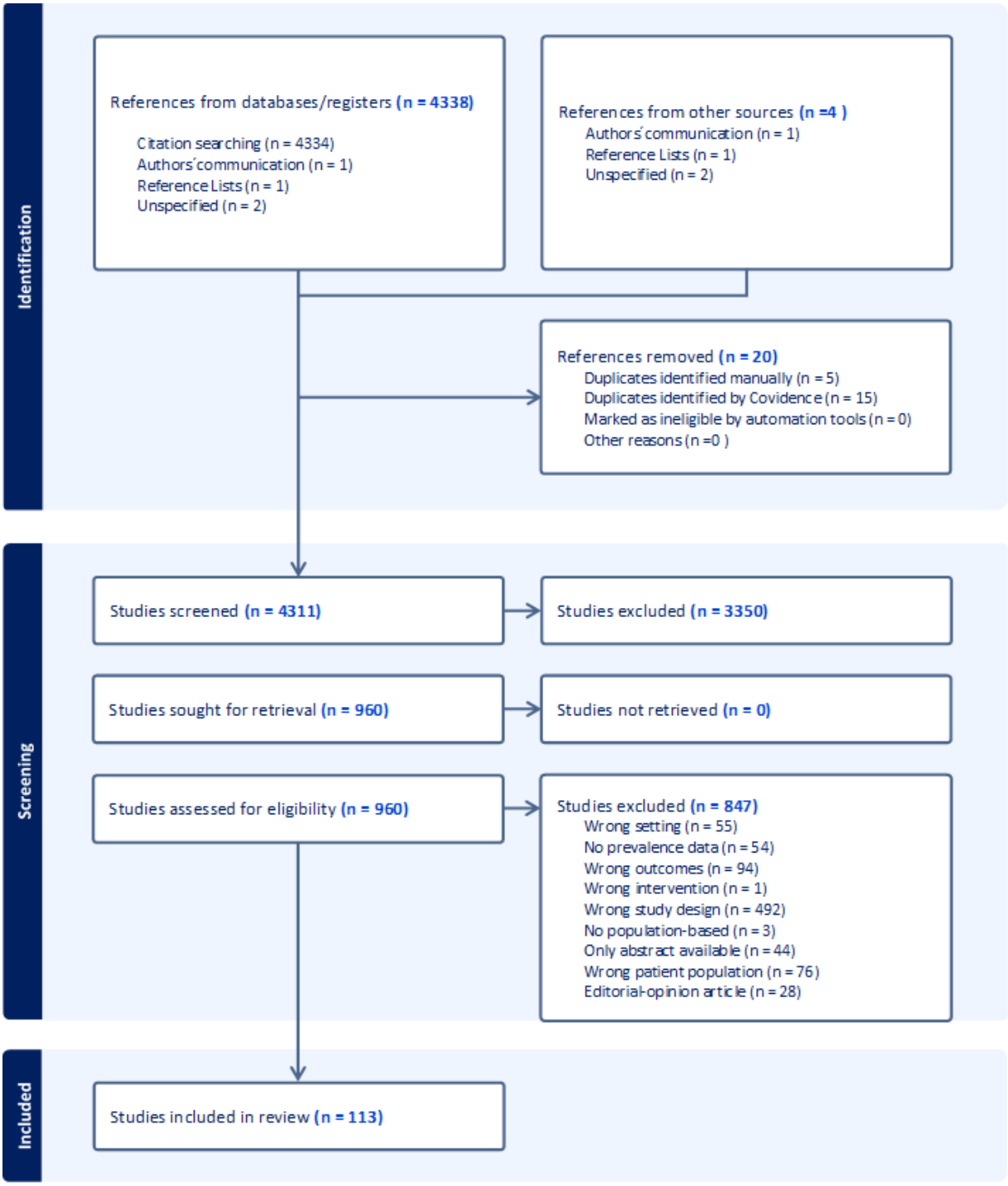
3.1.1 Literature search and screening process

This systematic review is reported following the PRISMA reporting guidelines for systematic reviews[24], adapted to the specificities of a prevalence systematic review. The complete literature search and screening process results are presented with a PRISMA 2020 flowchart, shown in Figure 1.

During the screening process, we contacted nine authors whenever the recruitment methodology reported in articles was unclear and received three responses. We also reached out to authors of five representative studies reporting mental health outcomes as quantitative assessments (for example, mean or median scores) to request the recodification of mental health outcome variables into categorical or dichotomous outcomes, and received two responses.

After merging the publications of the studies with more than 1 article, data from 113 unique studies from 22 EU countries were extracted by 2 independent reviewers (see the PRISMA flowchart in Figure 1). Studies published in English, French, German and Spanish were finally included.

Figure 1: PRISMA flowchart of the systematic review search and screening process



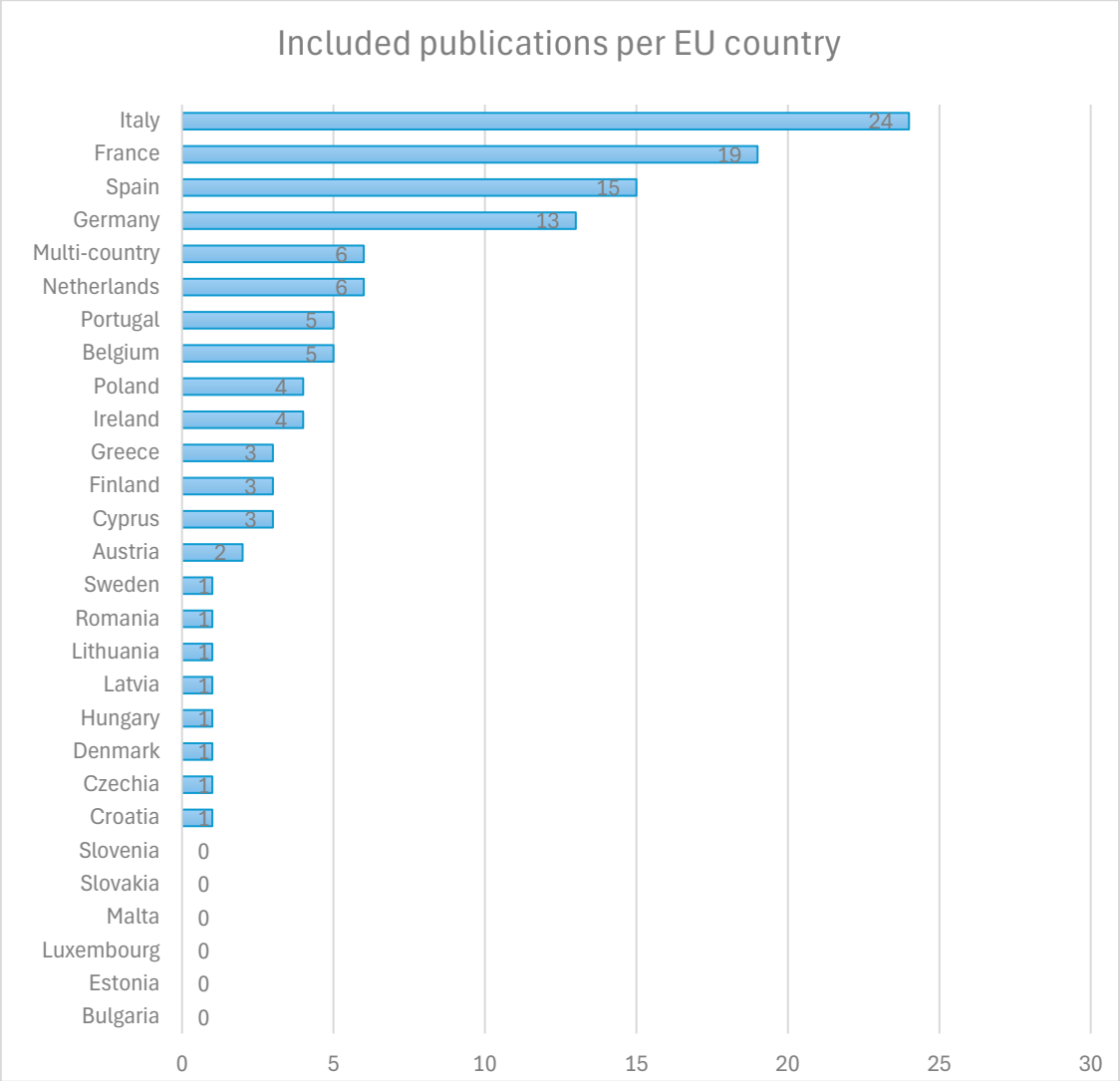
3.1.2 Description of included studies

The 120 publications included come from 113 unique studies conducted in 22 different EU countries. Figure 2 shows the number of publications retrieved by country. The countries with the most studies identified that fulfilled the study inclusion criteria were (by frequency): Italy, France, Germany, Spain and the Netherlands (Figure 2).

This systematic review finally included data from 22 EU countries (21 single country studies, plus 1 multi-country study that provided disaggregated data for Slovakia[44]). No studies were found for six EU

countries (Bulgaria, Estonia, Luxembourg, Malta, Slovenia and Slovakia). See *Annex 1 – Systematic review studies* [6] for the detailed characteristics of all included studies.

Figure 2: Number of EU publications included in the systematic review, by frequency of studies



Data of included studies per country: Slovakia[44], Austria[45 46], Belgium[47-51], Croatia[52], Cyprus[53-55], Czechia[56], Denmark[57], Finland[58-60], France[61-79], Germany[80-92], Greece[93-95], Hungary[96], Ireland[97-100], Italy[101-124], Latvia[125], Lithuania[126], the Netherlands[127-132], Poland[133-136], Portugal[137-141], Romania[142], Spain[143-157], Sweden[158], and studies that included more than one European country[44 61 159-162].
Source: authors' elaboration

All the included studies in the systematic review assessed mental health conditions using validated measurement instruments or clinical scales, and none of them assessed the outcomes through clinical interviews. The validated scales used in the studies and the cut-off points used to categorise the outcomes are described for each mental health outcome in Appendix D. For anxiety, depression and acute stress, data were extracted for the presence of the condition (any intensity), as well as for the presence of moderate or severe forms of the condition or disease, and prevalence was estimated for both (for example, prevalence of any degree of anxiety and prevalence of moderate or severe forms of anxiety only).

[6] *Annex 1 – Systematic review studies* is available under the Related Resources section at: https://osha.europa.eu/en/publications/mental-health-challenges-eu-health-and-social-care-sector-during-covid-19-strategies-prevention-and-management

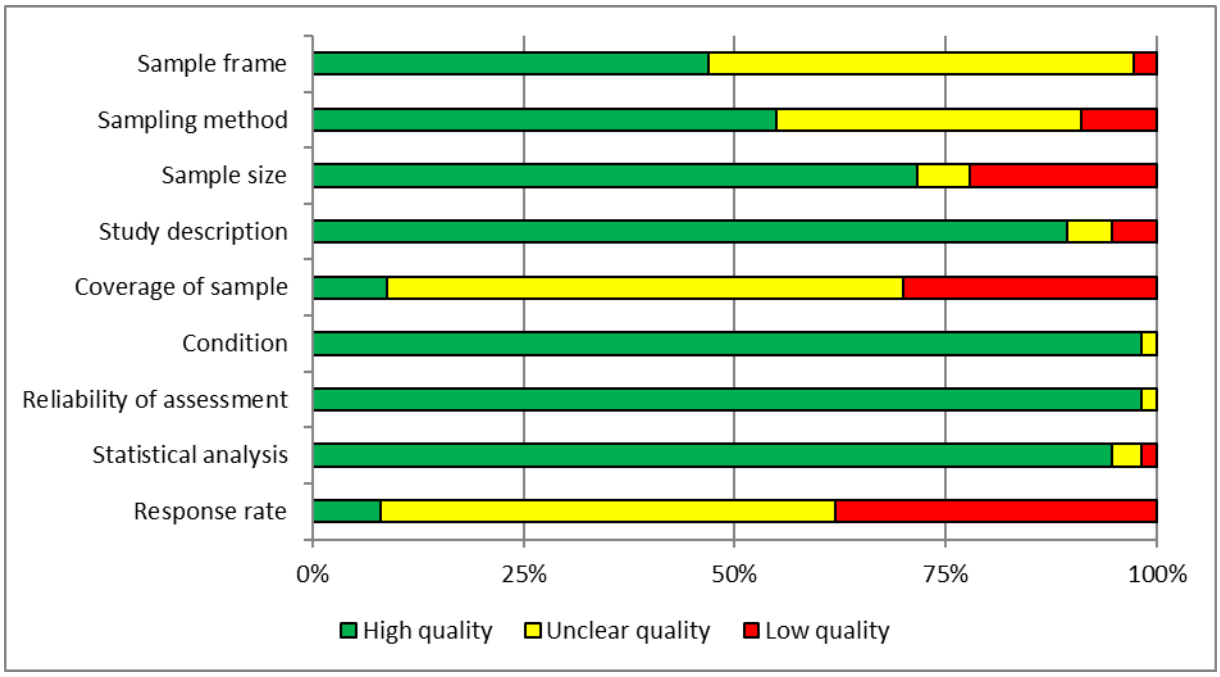
3.1.3 Quality appraisal of included studies

The results of the critical appraisal of a study inform how reliable the results from that study are across key prespecified study quality domains: sample frame, sampling of participants, sample size, appropriate description of subjects, sample coverage, identification of condition, reliability of assessment, statistical analysis and response rate (see Appendix A for more details on the domains).

Figure 3 presents a traffic light chart summarising the overall quality of the 113 included studies. The figure shows the percentage of studies with high, unclear and low quality in each domain (in green, yellow and red, respectively). An overall assessment across all domains is also presented.

There was high quality in the sampling frames used by 53 studies (47.3%), the sampling methods used in 62 studies (55.3%), the sample size in 81 studies (72.3%), the description of the subjects and setting in 101 studies (90.2%), the identification of the mental health condition of interest in 111 studies (99.1%), reliability of the assessment of the condition in 111 studies (99.1%) and the statistical computation of prevalence in 107 studies (95.5%); high quality in coverage of the sample was found in only 10 studies (8.9%) and in the representative response rate in 9 studies (8.0%). Overall, the studies included had strength in their internal validity, with solid assessments and prevalence estimates, but their main weakness was the low population representativity due to low response rates.

Figure 3: Methodological quality summary of the included studies, based on the Joanna Briggs Institute checklist



Source: authors' elaboration

3.1.4 Overall prevalence of mental health conditions

Estimates of prevalence for mental health conditions in the health and social care workers in Europe could be obtained from the data derived from 22 EU countries (113 studies).

The forest plot in Figure 4 shows the summary estimates for the prevalence of the different mental health conditions; the meta-analyses result for each mental health condition (including all studies from the countries identified) with 95% CIs, the number of studies providing data and the total number of participants assessed for the condition.

The pooled prevalence of anxiety in Europe in the HeSCare sector was estimated to be 37%, and this was derived from 41 available studies including 35,868 participants. The studies reported very different prevalence estimates for anxiety, as shown by the large value of statistical heterogeneity (I^2) of 98.5%. The 95% CI around the estimate ranges from 0.31 to 0.49, indicating low precision despite the large

number of studies and participants contributing to this metanalysis, due to the significant differences across studies. The prevalence of moderate and severe forms of anxiety was lower, with an observed prevalence of 21%, which is 16% lower than the prevalence for anxiety of any severity (including mild).

The estimated prevalence of depression in the sector across the EU was 33%, based on 41 studies including 44,001 participants, showing considerable heterogeneity. The prevalence of moderate or severe depression was 20%, lower than the general depression estimate.

The prevalence of acute stress was as high as 44%, based on data from 22 studies including 19,575 participants. As with the previous conditions, there was significant heterogeneity. Acute stress of moderate and severe intensity showed an overall prevalence of 36%.

Psychological distress was the most prevalent mental health problem in the sector, with a prevalence of 46%, which may be explained by its more unspecific definition and less severe presentation.

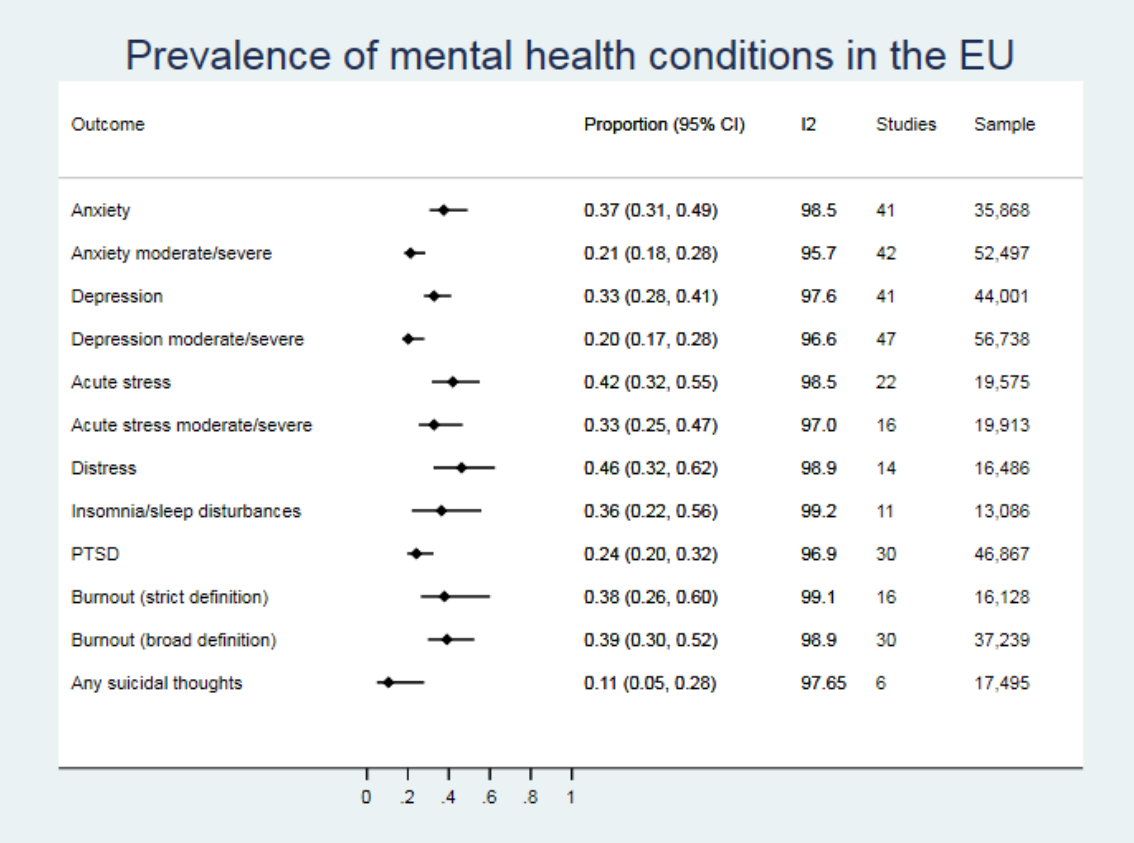
The prevalence of moderate to severe insomnia or sleep disturbances was estimated to be 36%. Still, the large CIs around the estimate suggest only moderate precision of this estimate, possibly due to differences in how the condition was defined and assessed across studies.

The prevalence of burnout was 38%, obtained from 16 studies that applied a strict definition of the problem, following the guidelines of the scales used and established by the authors of the scales. When considering 14 additional studies that applied broader definitions of burnout (that is, applying less stringent requirements to define the presence of burnout), the prevalence of burnout remained very similar.

The least prevalent conditions were PTSD and suicidal thoughts, with a prevalence of 24% and 11%, respectively. Suicidal thoughts were reported in only 6 studies totalling 17,495 participants from 3 countries (Spain, Ireland and Belgium). Despite the relatively large overall sample size, the low number of studies and few countries represented mean that this is a very indirect estimator of the European prevalence of suicidal thoughts in the HeSCare sector; more evidence is needed.

A significant degree of statistical heterogeneity was observed for all the mental health outcomes studied, as shown by the large I^2 values in the forest plot. This variability in estimates across the studies in the meta-analyses is likely due to a significant degree of variability across studies, which differed in populations studied (for example, professional subgroups in the sector), the characteristics of the countries, the periods when the studies were conducted and the relationship with the COVID-19 periods (for example, pandemic waves) in the country, and assessed a same outcome using different instruments or using different cut-offs to establish the presence of the mental health condition of interest.

Figure 4: EU-27 analysis of prevalences of mental health conditions in the HeSCare sector



Source: authors' elaboration using Software Stata[39]

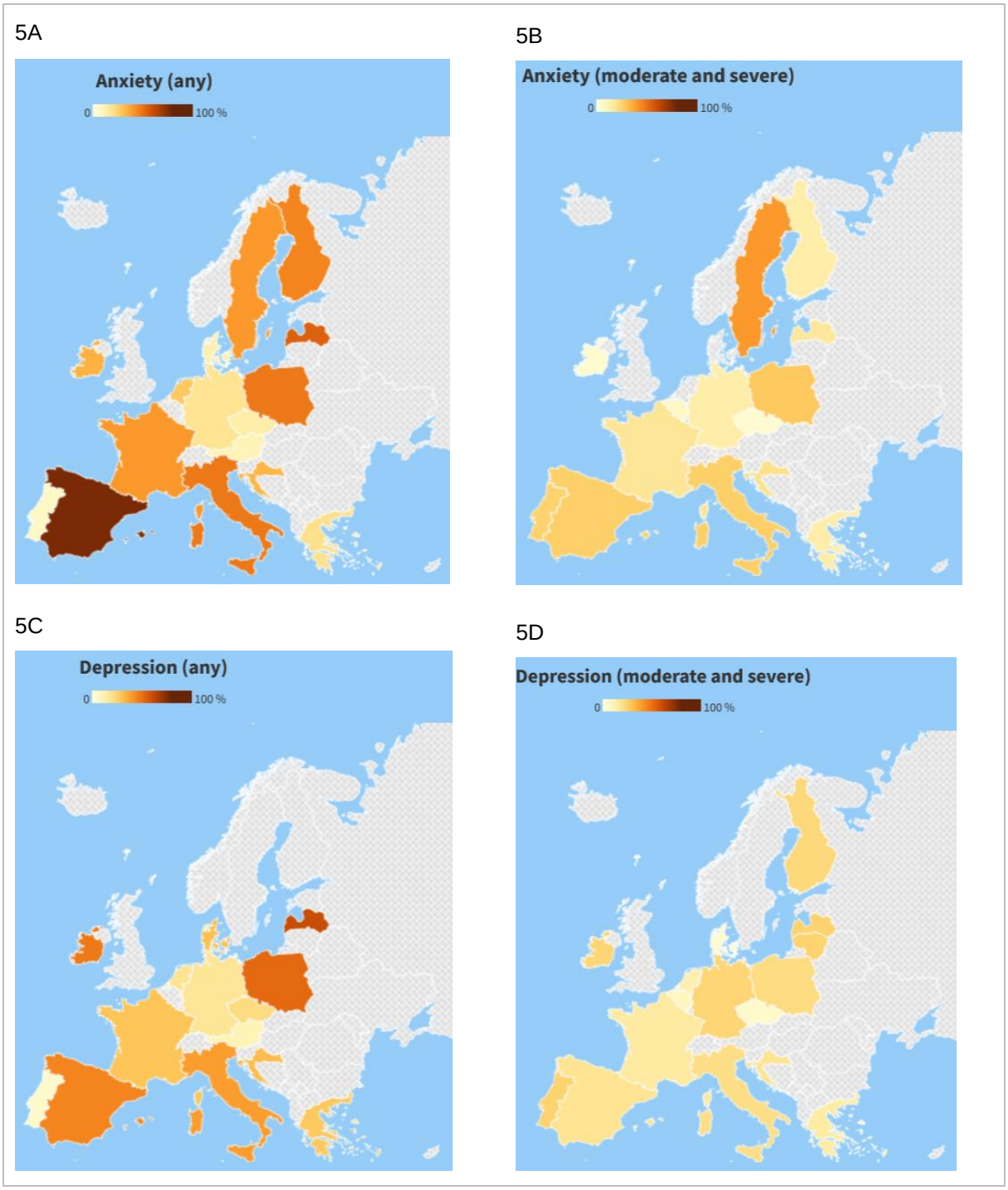
Appendix E reports data from studies that only presented disaggregated data by burnout dimension, not a summary estimate of burnout prevalence.

3.1.5 Prevalence of mental health conditions by EU-country

Figure 5, Figure 6 and Figure 7 below present the results for each mental health outcome in the EU countries for which data were available, using a colour intensity map of prevalences (from 0% to 100%).

The individual forest plots for each EU-27 country with data available are presented in Appendix F as individual figures reporting overall prevalence, 95% CIs, heterogeneity estimates, and the number of studies and participants analysed per mental health outcome. Very high levels of heterogeneity are observed in the mental health estimates of prevalence for all conditions and in all countries, due to the previously listed sources of variability and the low number of studies at the country level, for each outcome studied.

Figure 5: Intensity map of mental health prevalence of anxiety and depression, by country in the EU-27



5A: anxiety (any level). 5B: anxiety (moderate and severe). 5C: depression (any level). 5D: depression (moderate and severe).
Source: authors' elaboration using Flourish Studio (www.flourish.com)

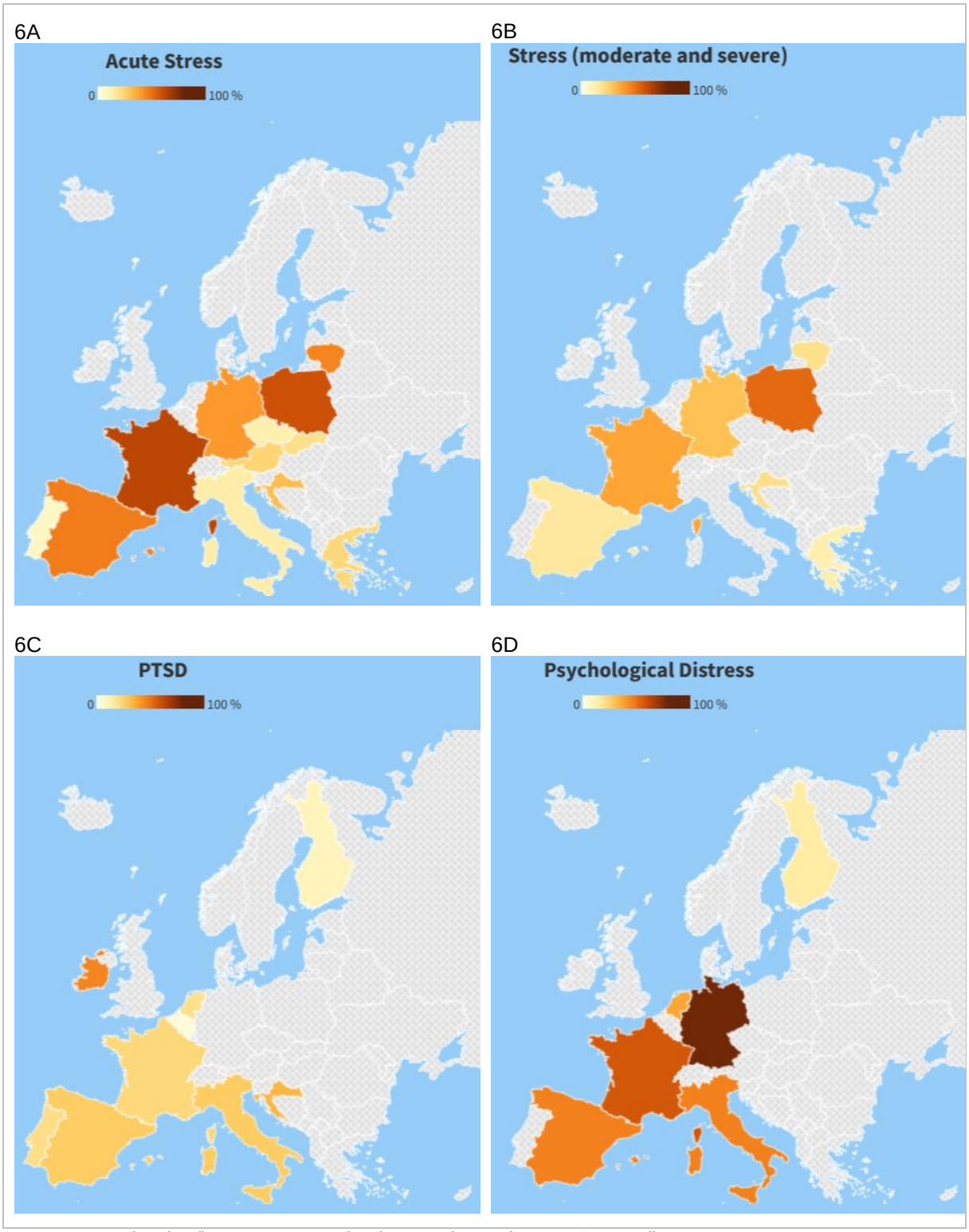
Prevalence data from 17 of the 27 EU countries were available to estimate the prevalence of anxiety by country (any level). Spain had the highest pooled estimates (prevalence 0.76 CI 95% 0.74-0.78; 2 studies, 1,506 participants). Portugal showed the lowest estimates.

Prevalence data from 14 of the 27 EU countries were available to estimate the prevalence of moderate and severe anxiety by country. Cyprus had the highest pooled estimates (prevalence 0.50 CI 95% 0.45-0.55; 1 study[54], 381 participants). Czechia and Ireland showed the lowest estimates.

Prevalence data from 15 of the 27 EU countries were available to estimate the prevalence of depression (any level) by country. Latvia had the highest pooled estimates (prevalence 0.60 CI 95% 0.57-0.63; 1 study[125], 835 participants). Portugal showed the lowest estimates.

Prevalence data from 17 of the 27 EU countries were available to estimate the prevalence of moderate and severe depression by country. Cyprus had the highest pooled estimates (prevalence 0.27 CI 95% 0.45-0.55; 2 studies [53] [54], 805 participants). Denmark showed the lowest estimates.

Figure 6: Intensity map of mental health prevalence of acute stress, PTSD and distress, by country in the EU-27



6A: acute stress (any level). 6B: acute stress (moderate and severe). 6C: PTSD. 6D: distress.
Source: authors' elaboration using Flourish Studio (www.flourish.com)

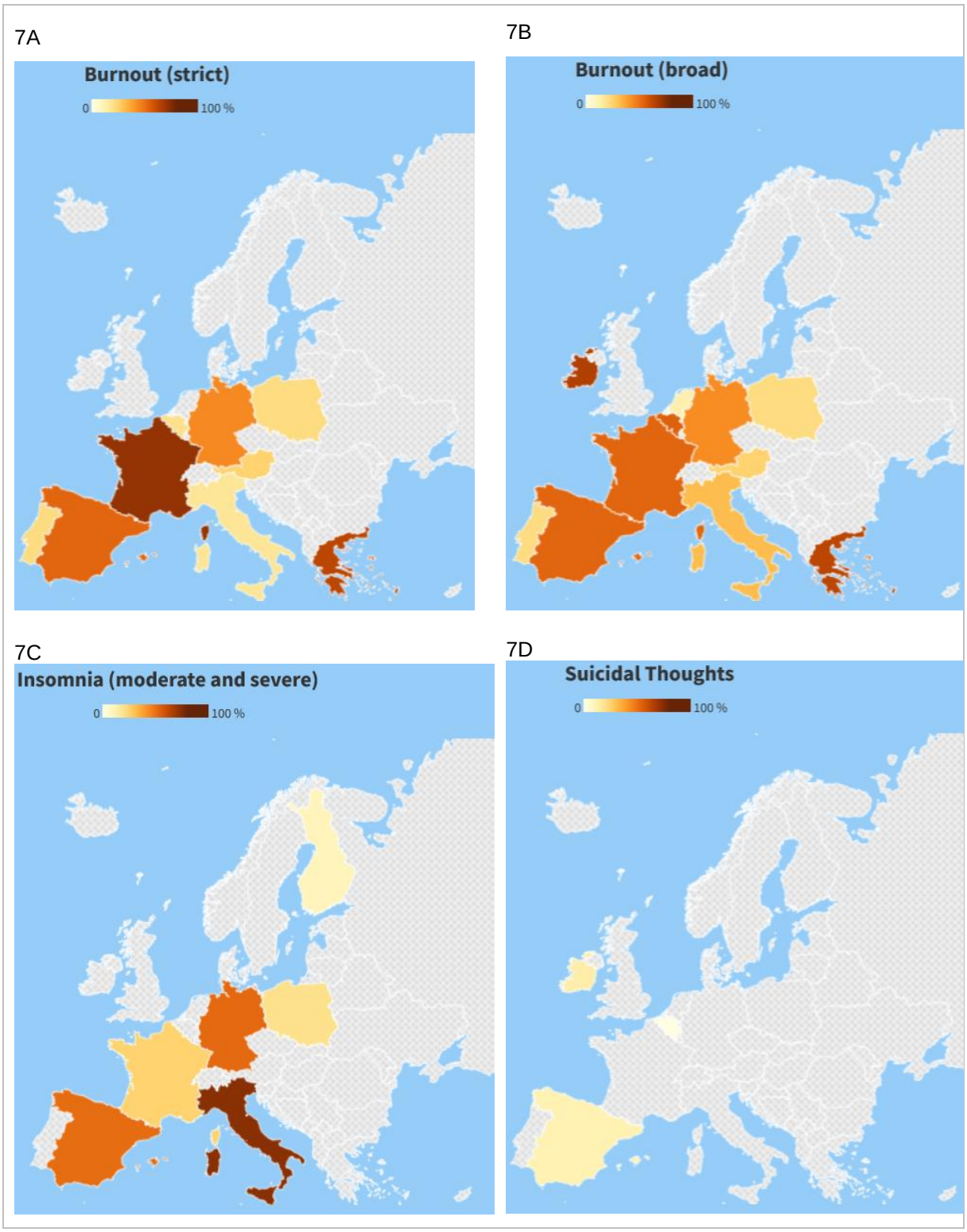
Prevalence data from 13 of the 27 EU countries were available to estimate the prevalence of moderate and severe stress by country. Cyprus had the highest pooled estimates (prevalence 0.64 CI 95% 0.38-0.83; 1 study[53], 424 participants). Portugal showed the lowest estimates.

Prevalence data from 8 of the 27 EU countries were available to estimate the prevalence of moderate and severe stress by country. Poland had the highest pooled estimates (prevalence 0.52 CI 95% 0.50-0.53; 2 studies[133] [136], 2,963 participants). Greece showed the lowest estimates.

Prevalence data from 10 of the 27 EU countries were available to estimate the prevalence of PTSD. Ireland had the highest pooled estimates (prevalence 0.46 CI 95% 0.42-0.48; 2 studies[97] [98], 767 participants). Belgium showed the lowest estimates.

Prevalence data from 6 of the 27 EU countries were available to estimate the prevalence of distress by country. Germany had the highest pooled estimates (prevalence 0.78 CI 95% 0.73-0.83; 1 study[163], 259 participants). Finland showed the lowest estimates.

Figure 7: Intensity map of mental health prevalence of insomnia, burnout and suicidal thoughts, by country in the EU-27



7A: burnout (strict definition). 7B: burnout (broad definition). 7C: insomnia or sleep disturbances. 7D: suicidal thoughts.
Source: authors' elaboration using Flourish Studio (http://www.flourish.com/)

Prevalence data from 6 of the 27 EU countries were available to estimate the prevalence of insomnia by country. Italy had the highest pooled estimates (prevalence 0.65 CI 95% 0.55-0.74; 2 studies[103] [122], 1,313 participants). Finland showed the lowest estimates.

Prevalence data from 10 of the 27 EU countries were available to estimate burnout prevalence by country (diagnosed by using strict definition). France had the highest pooled estimates (prevalence 0.71 CI 95% 0.69-0.73; 1 study, 1,992 participants). Cyprus showed the lowest estimates.

Prevalence data from 12 of the 27 EU countries were available for estimating the prevalence of burnout by country (diagnosed by using a broad definition); Ireland had the highest pooled estimates (prevalence 0.65 CI 95% 0.55-0.74; 1 study, 105 participants). Cyprus showed the lowest estimates.

Prevalence data from 3 of the 27 EU countries were available for estimating the prevalence of suicidal thoughts by country. Ireland had the highest pooled estimates (prevalence 0.14 CI 95% 0.05-0.27; 1 study[97], 390 participants). Belgium showed the lowest estimates.

3.1.6 Prevalence by selected subgroups of HeSCare workers

Analyses by subgroups were conducted in different categories of workers of interest identified in the sector, considered at potentially higher risks for worsened mental health outcomes during COVID-19.

- **Professional profiles**

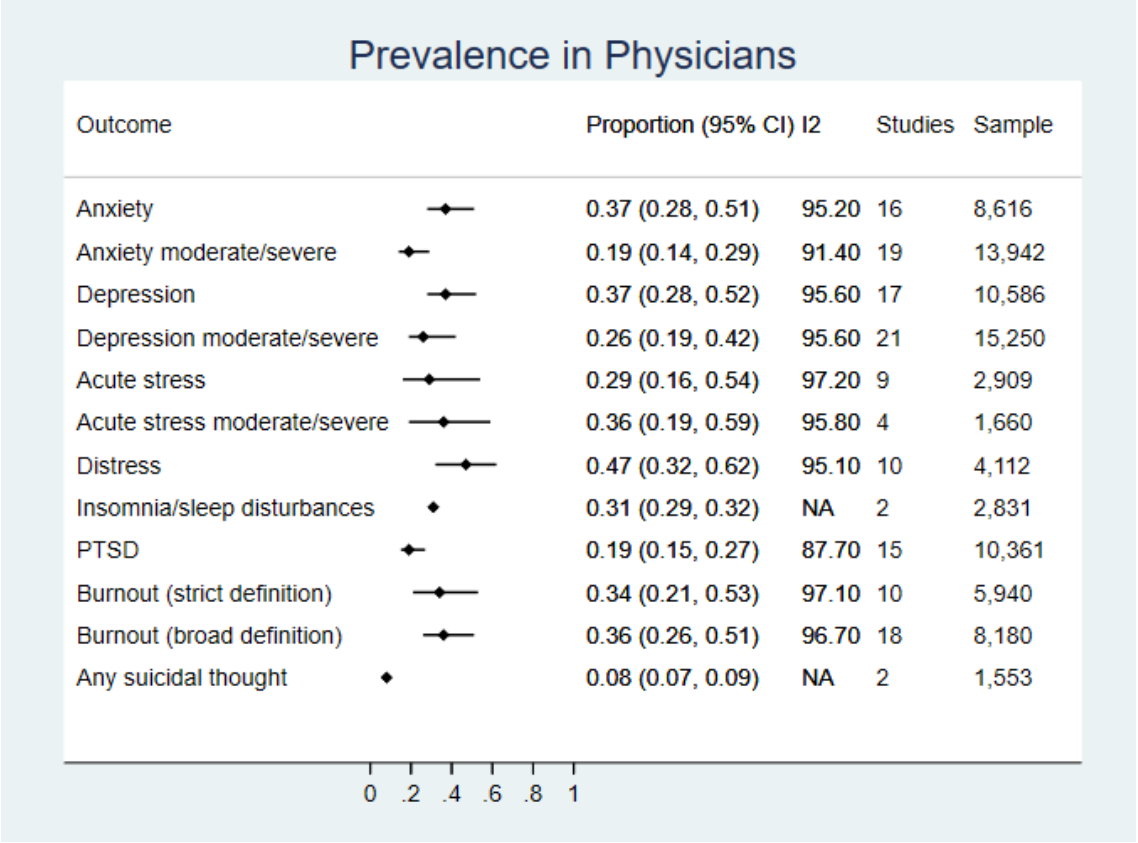
Prevalences were assessed by professional profile, grouping the available data provided by the individual studies' authors into 11 general professional profiles: physicians (any speciality), nurses, aides, residents (any speciality), physiotherapists and rehabilitation staff, radiology staff, laboratory technicians and staff, social and mental health staff, EMTs, administrative staff and unspecified non-medical staff. The details of all the professional categories reported by the studies and the corresponding general professional profile to which each was assigned are presented in Appendix G.

Figures 8 to 18 show the pooled prevalence for each mental health condition in each professional profile. The professional profiles for which more studies are available are physicians, nurses, aides and residents. Prevalence data for the other profiles has also been reported, despite the very low number of studies available; therefore, estimates are less reliable.

Results show that the professional profiles with a higher prevalence of mental health conditions were nurses, aides and residents. These are healthcare occupations included mainly in the NACE Q division 86 activities and with a higher likelihood of being frontline workers (directly exposed to COVID-19).

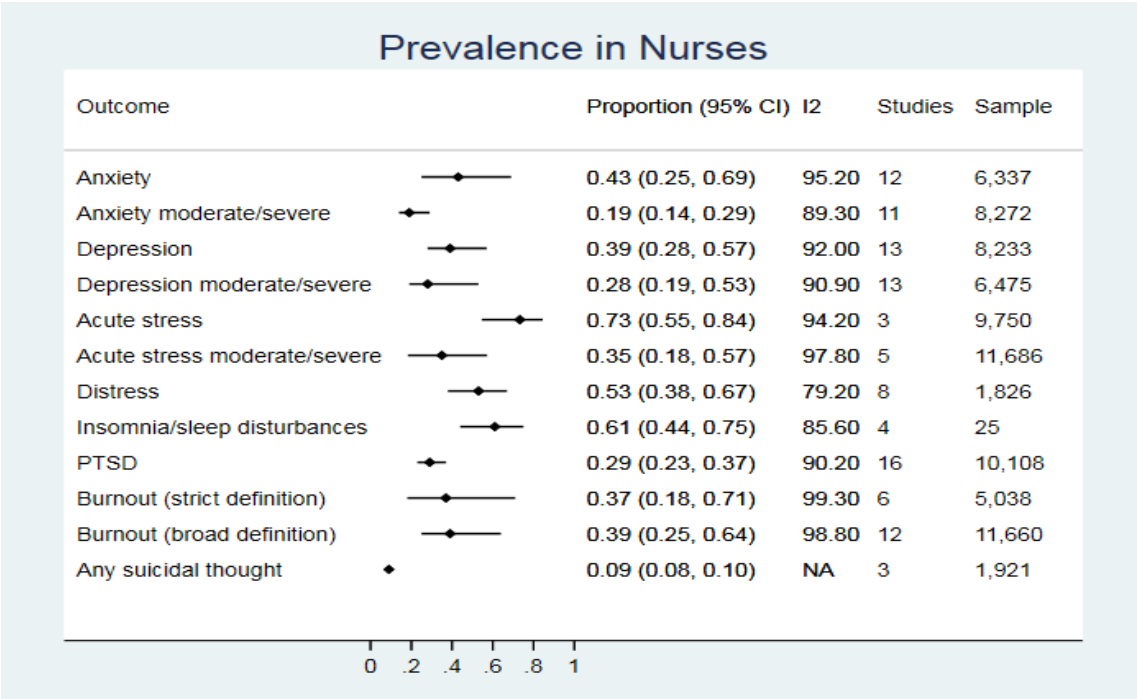
Nurses report overall the highest prevalence of acute stress (73%) and insomnia or sleep disturbances (61%), while aides and residents report a high prevalence of distress (62%) and acute stress (60%), respectively.

Figure 8: Subgroup analysis by professional profile - Physicians



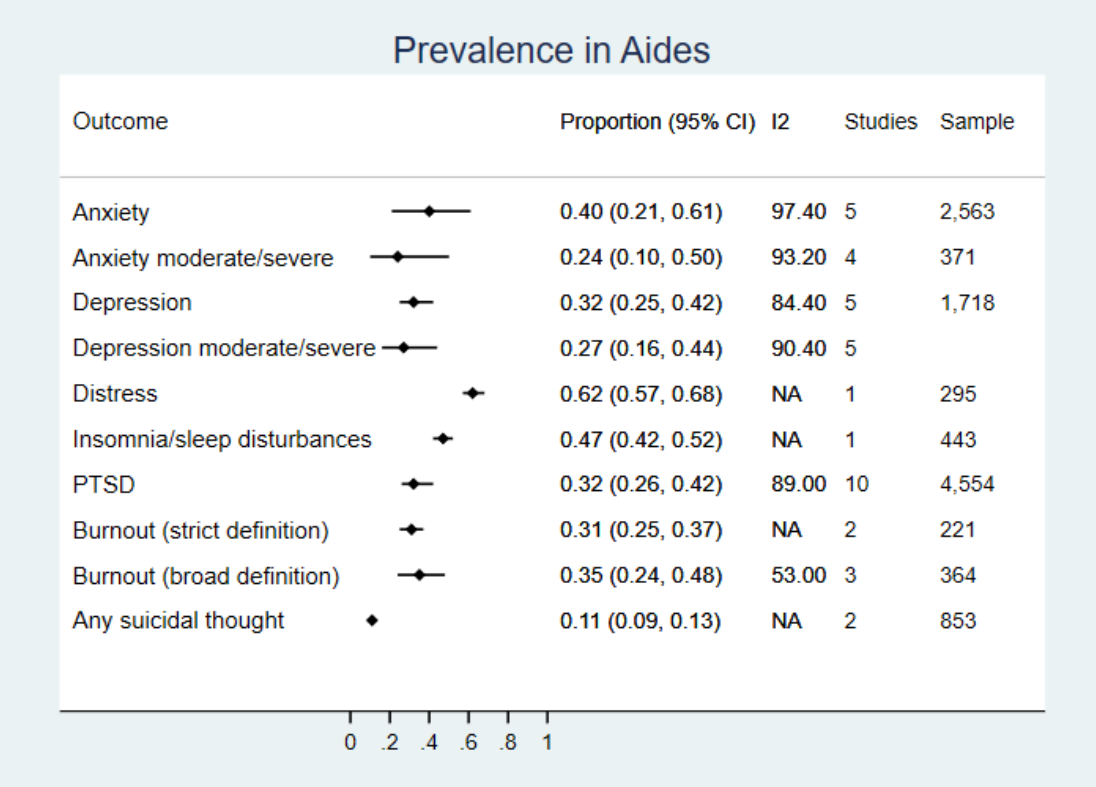
Source: authors' elaboration using Software Stata[39]

Figure 9: Subgroup analysis by professional profile - Nurses



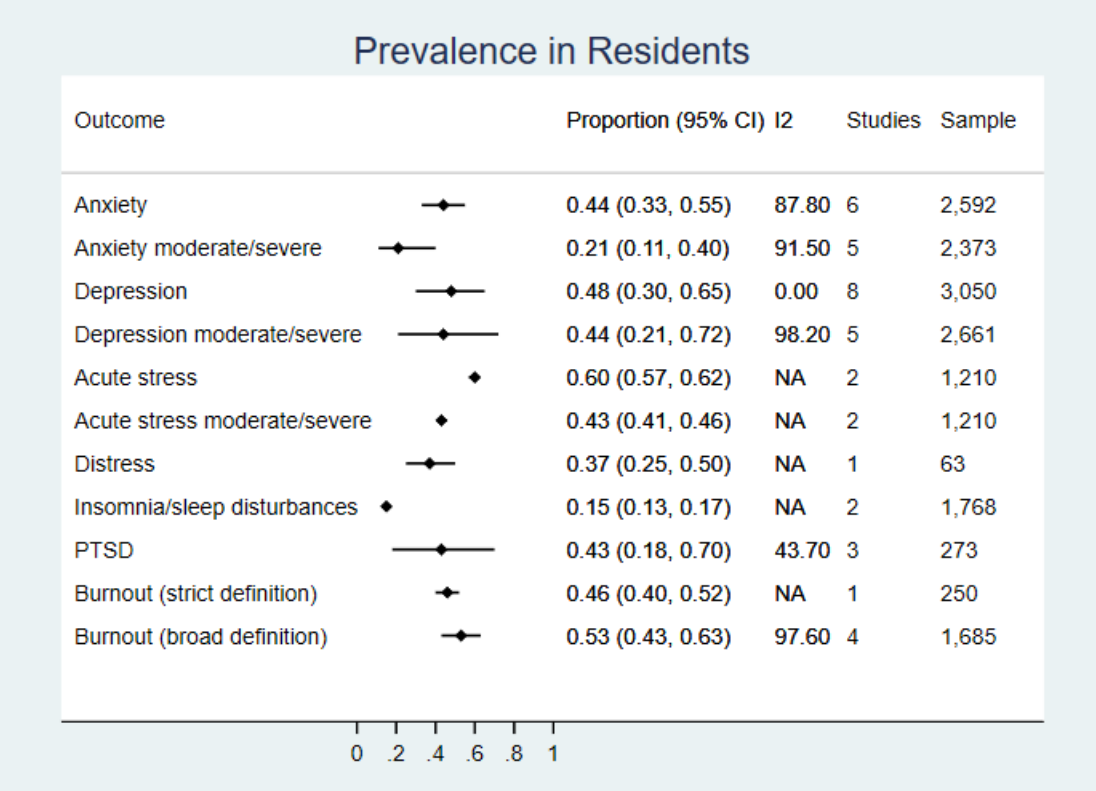
Source: authors' elaboration using Software Stata[39]

Figure 10: Subgroup analysis by professional profile - Aides



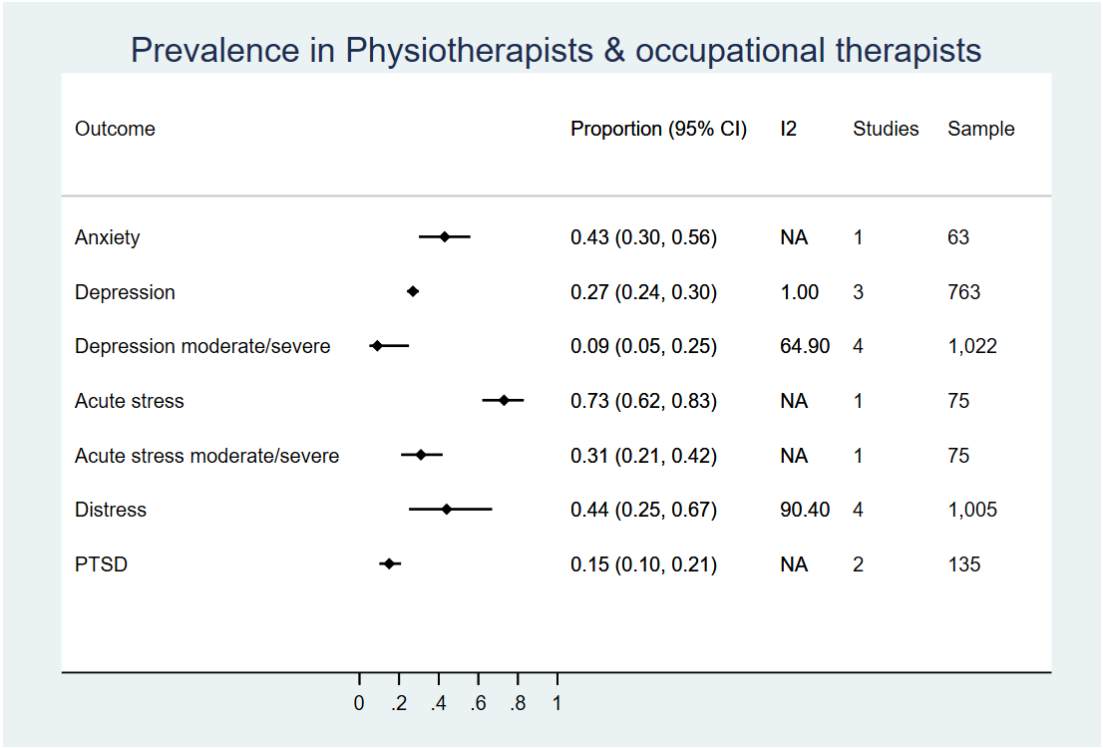
Source: authors' elaboration using Software Stata[39]

Figure 11: Subgroup analysis by professional profile - Residents



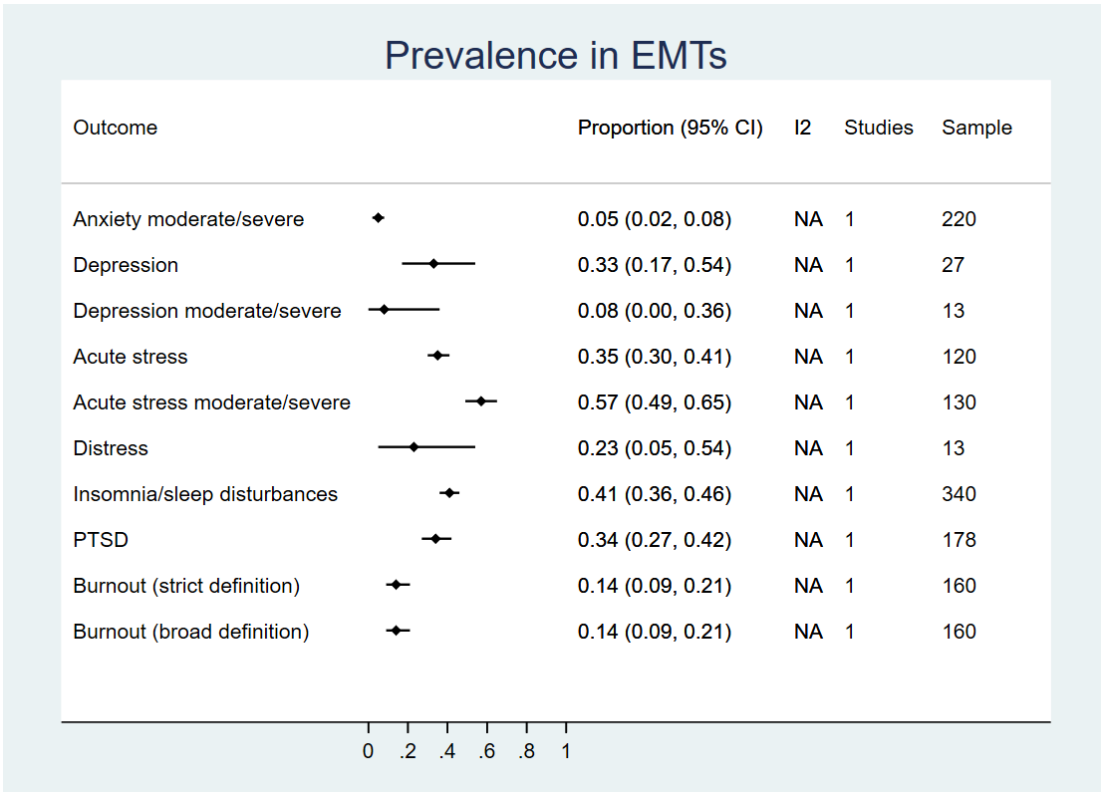
Source: authors' elaboration using Software Stata[39]

Figure 12: Subgroup analysis by professional profile - Physiotherapists and occupational therapists



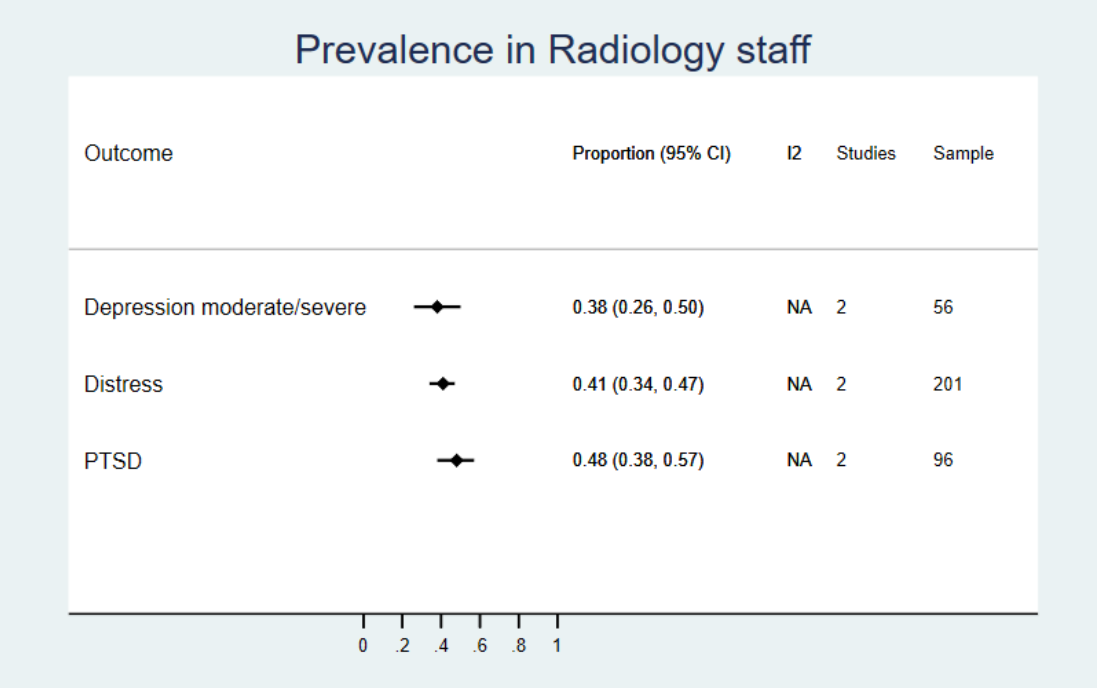
Source: authors' elaboration using Software Stata[39]

Figure 13: Subgroup analysis by professional profile - EMTs



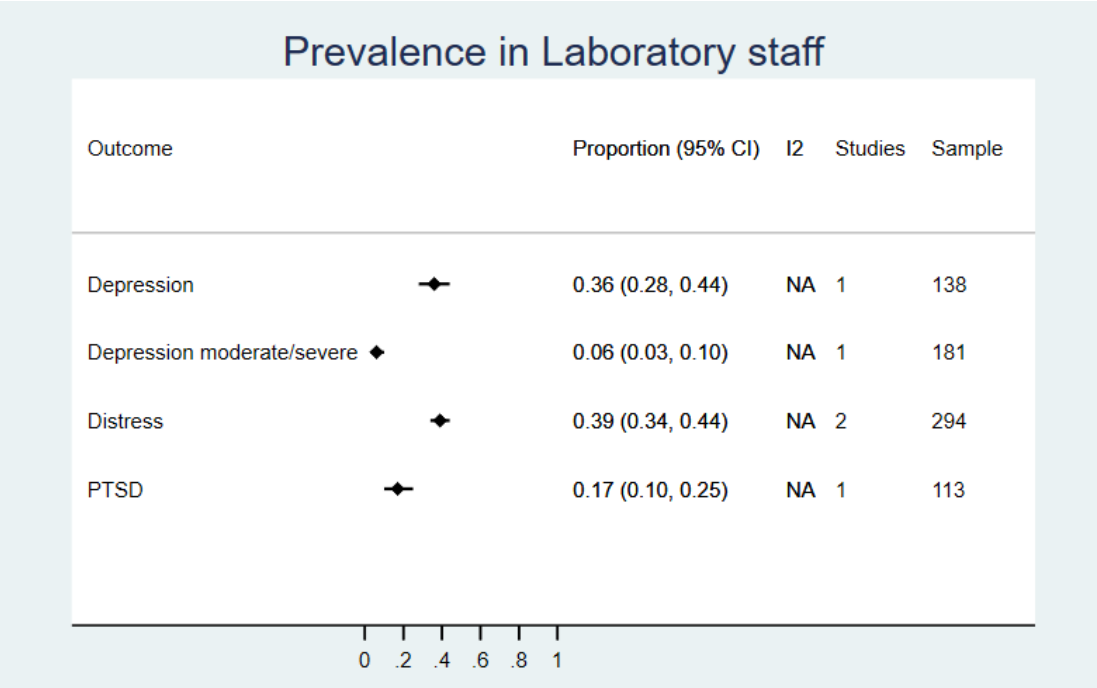
Source: authors' elaboration using Software Stata[39]

Figure 14: Subgroup analysis by professional profile - Radiology staff



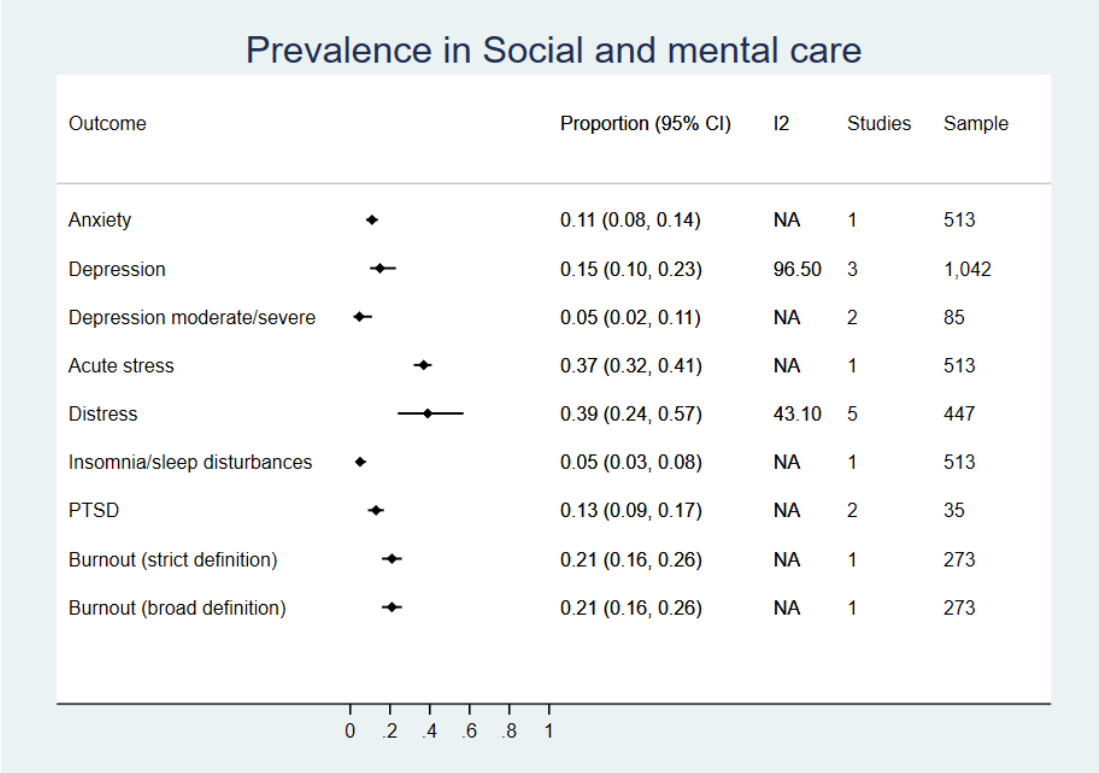
Source: authors' elaboration using Software Stata[39]

Figure 15: Subgroup analysis by professional profile - Laboratory staff



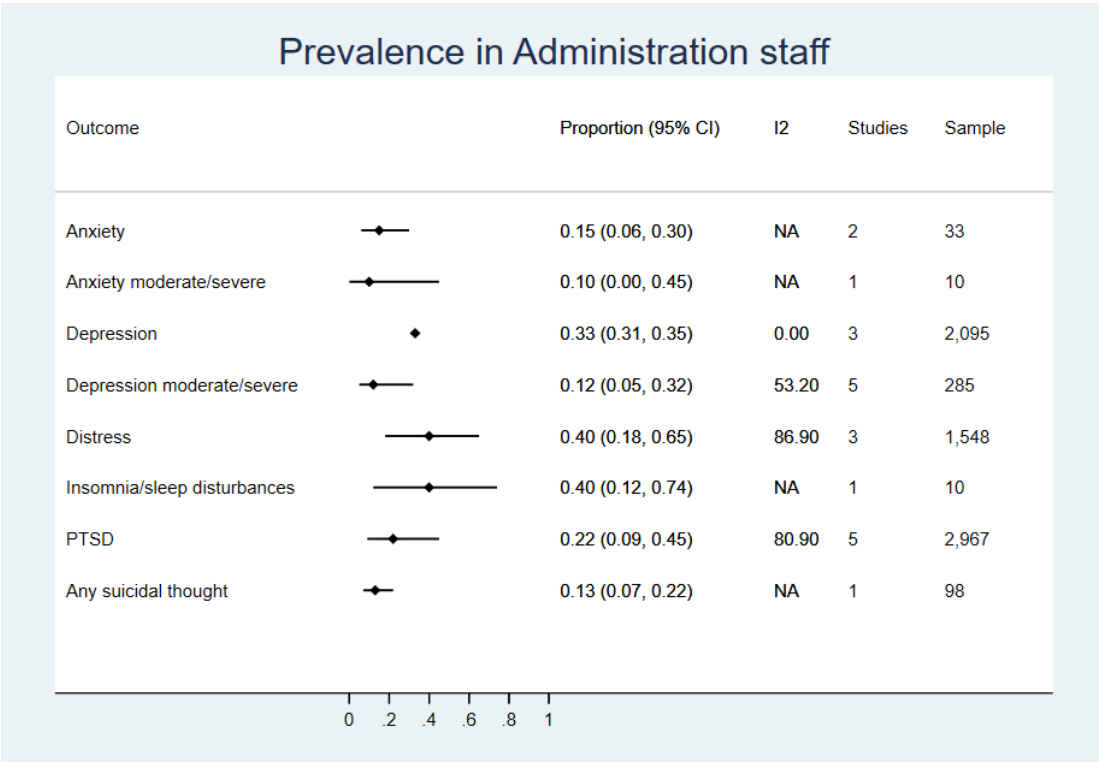
Source: authors' elaboration using Software Stata[39]

Figure 16: Subgroup analysis by professional profile - Social and mental care workers



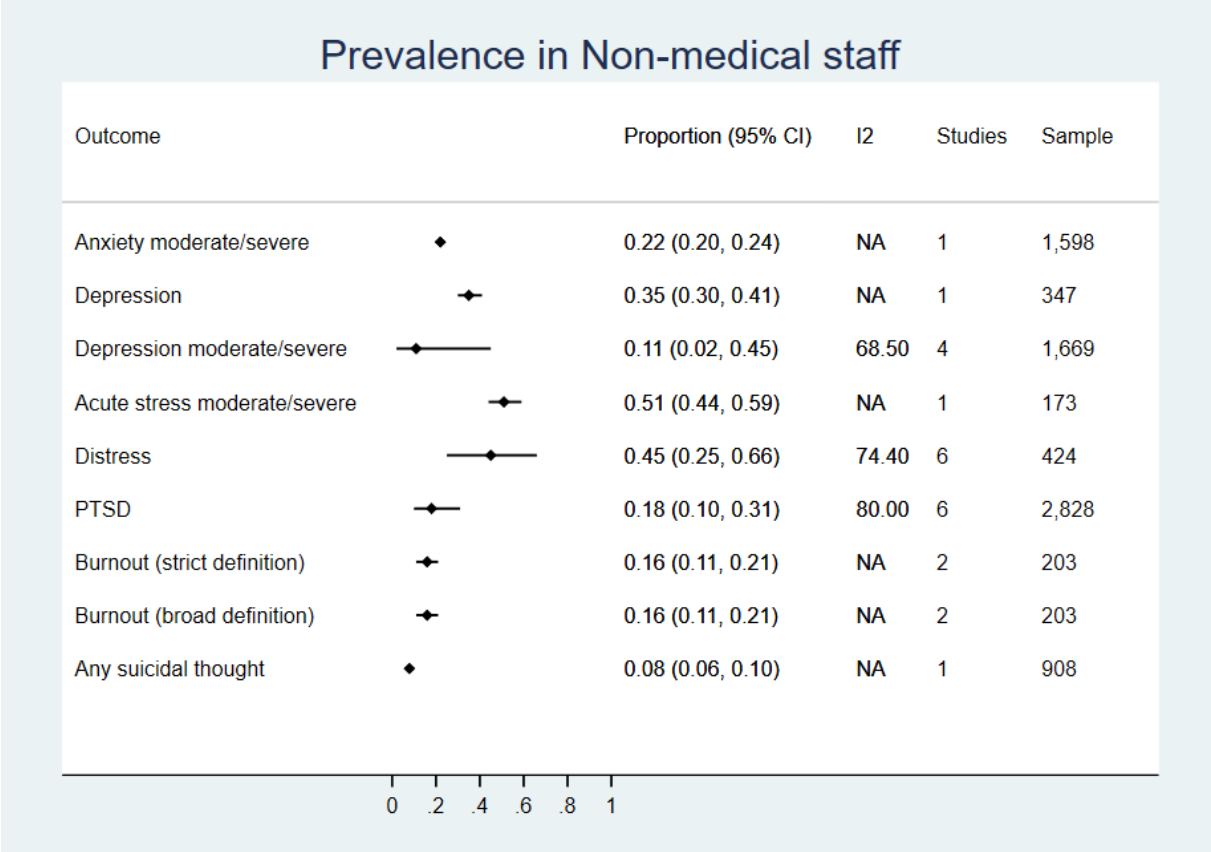
Source: authors' elaboration using Software Stata[39]

Figure 17: Subgroup analysis by professional profile - Administration staff



Source: authors' elaboration using Software Stata[39]

Figure 18: Subgroup analysis by professional profile - Non-medical staff



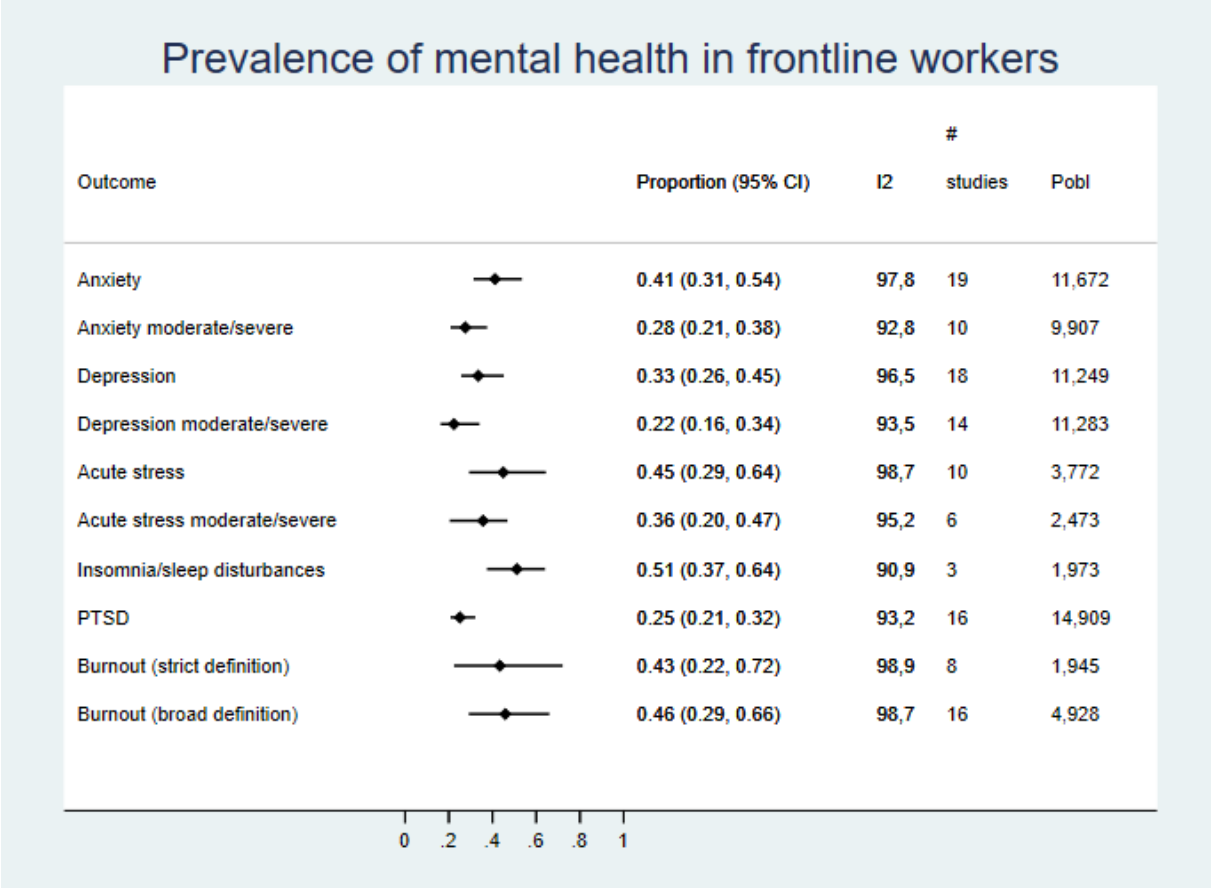
Source: authors' elaboration using Software Stata[39]

- **Prevalence in frontline workers**

A further analysis restricted to frontline professional workers was conducted based on the studies that included only frontline workers or reported disaggregated results for these professionals. The condition of being a frontline health and social care professional during the pandemic was defined in different ways across the studies, and there is no clear consensus in the literature on the definition of frontline workers. In this analysis, frontline workers were considered those defined as such by the authors of the original studies, as well as more generally professionals in the HeSCare sector who were assigned to work in COVID-19 wards or specifically attending COVID-19 patients or working in the intensive care unit, or emergency medical technicians (EMTs) or department staff.

Figure 19 shows the prevalence of mental health outcomes restricted to frontline professionals. The data were obtained from 36 available studies. The prevalence results in this subgroup of potential higher risk for infection during the pandemic are aligned with those of the previous analyses considering all HeSCare sector workers but are higher for some of the health outcomes studied. Frontline professionals show a higher prevalence of insomnia or sleep disturbances, anxiety and burnout than the average of workers in the sector, indicating a more significant impact of the pandemic on the mental health of professionals attending patients with COVID-19, with particular emphasis on organisational stress (burnout).

Figure 19: Subgroup analysis in frontline workers

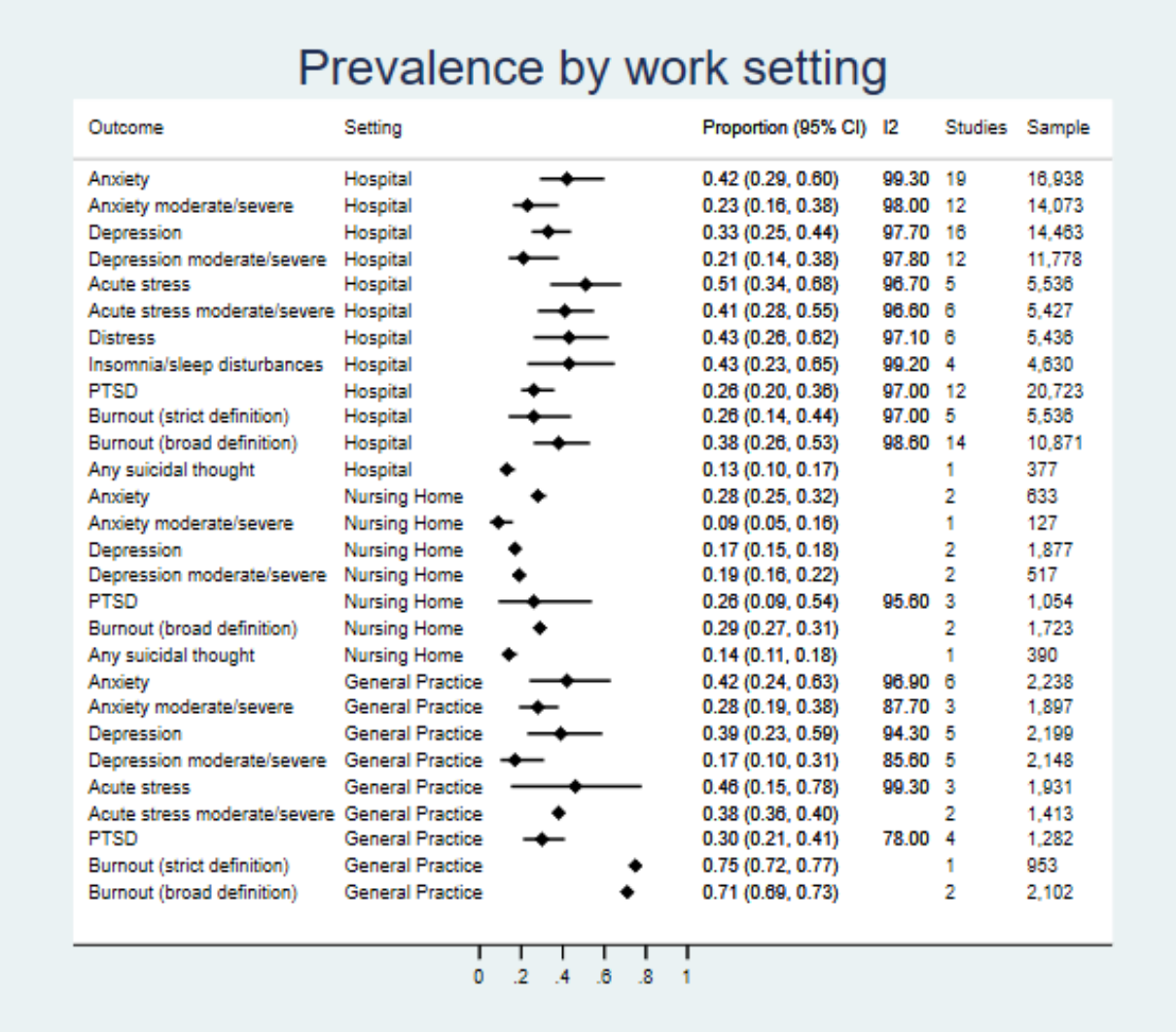


Source: authors' elaboration using Software Stata[39]

- **Prevalence by work setting**

A subgroup analysis by type of work setting was conducted. Most of the data reported corresponds to professionals working in hospital settings (n=45 studies); there are fewer studies reporting data for general practice professionals (n=11) and very few studies reporting data for nursing home professionals (n=6). The pooled results of mental health prevalence by professional setting, obtained with the available data from 57 included studies, are shown in Figure 20. Overall, results are quite mixed and heterogeneous. Nevertheless, the prevalence of mental health problems appears to be higher in hospital settings for most of the outcomes studied, when compared to out-of-hospital settings, particularly nursing homes. Remarkably, general practitioners report the highest prevalence of burnout (75%), but these values are derived from a single study. This subgroup analysis provides indirect evidence on prevalence in the NACE Q divisions, as the hospital and general practice settings fall under NACE 86, and the nursing homes setting are classified under NACE 87. Unfortunately, no data were reported for settings in the NACE 88 subsector, residential care without accommodation, a subsector in which a lack of OSH data has been reportedly noted. Also, this analysis by work setting informs us about the prevalence of mental health problems by level of care (secondary-, primary- and community-based settings).

Figure 20: Subgroup analysis by work setting



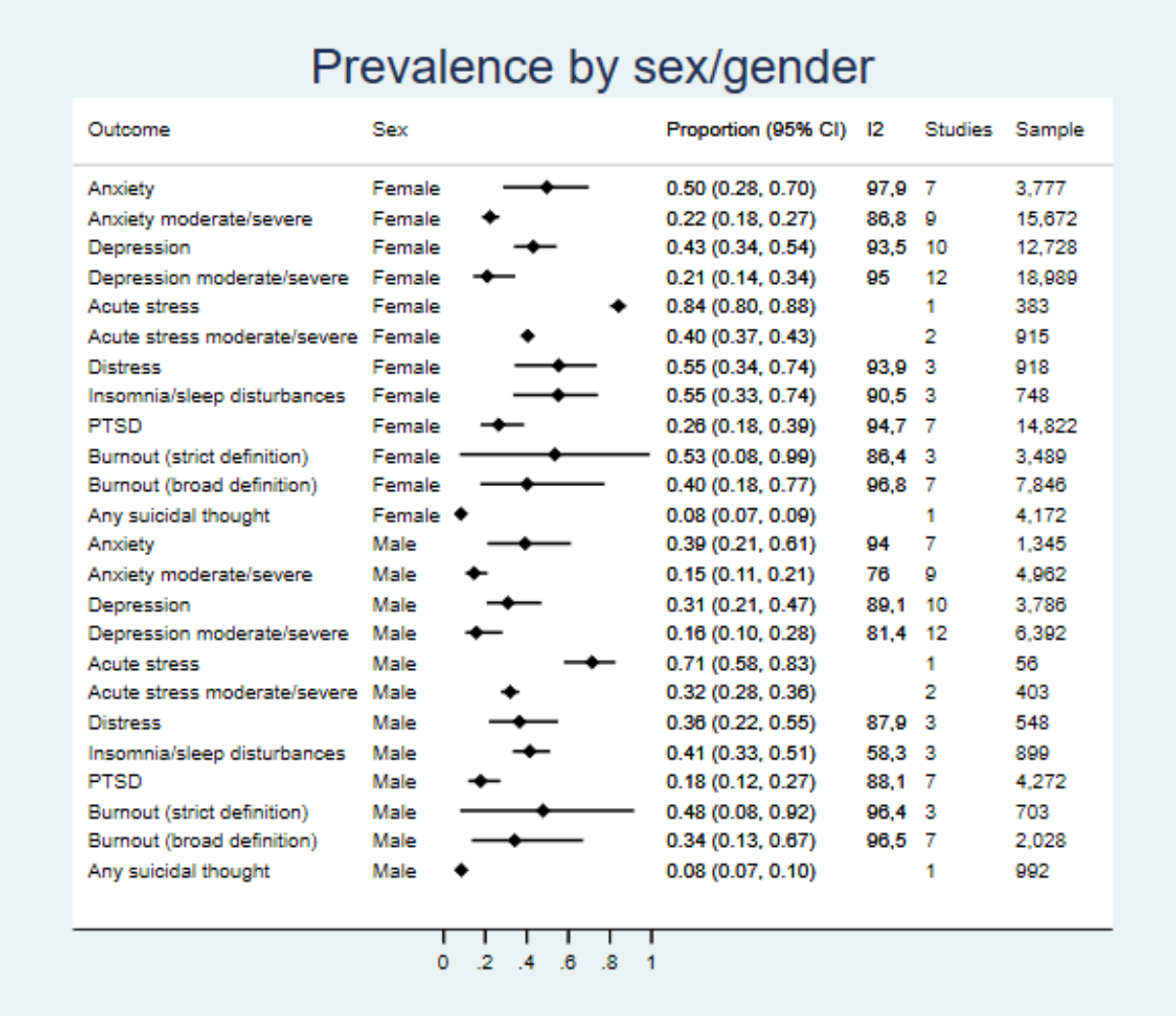
Source: authors' elaboration using Software Stata[39]

- **Prevalence by sex or gender**

The following results on mental health prevalences separately in female and male HeSCare workers (Figure 21) are based on 24 included studies across the EU that reported prevalence data separately for each group. Overall, the reported prevalence of mental health conditions is higher for female workers than for male workers for all mental health problems except suicidal thoughts. The mental health conditions most frequently reported by the studies are anxiety, depression and PTSD, and their prevalence is, on average, 11%, 12% and 8% higher in female workers than in male workers for each outcome, respectively.

The most significant differences in prevalence by sex are observed in distress (19% higher in female workers), insomnia or sleep disturbances (14% higher in female workers) and acute stress (13% higher in female workers). However, these results are derived from very few studies conducted in 9 countries. Only one study reported prevalence data separately by sex for suicidal thoughts.

Figure 21: Subgroup analysis in female versus male workers



Source: authors' elaboration using Software Stata[39]

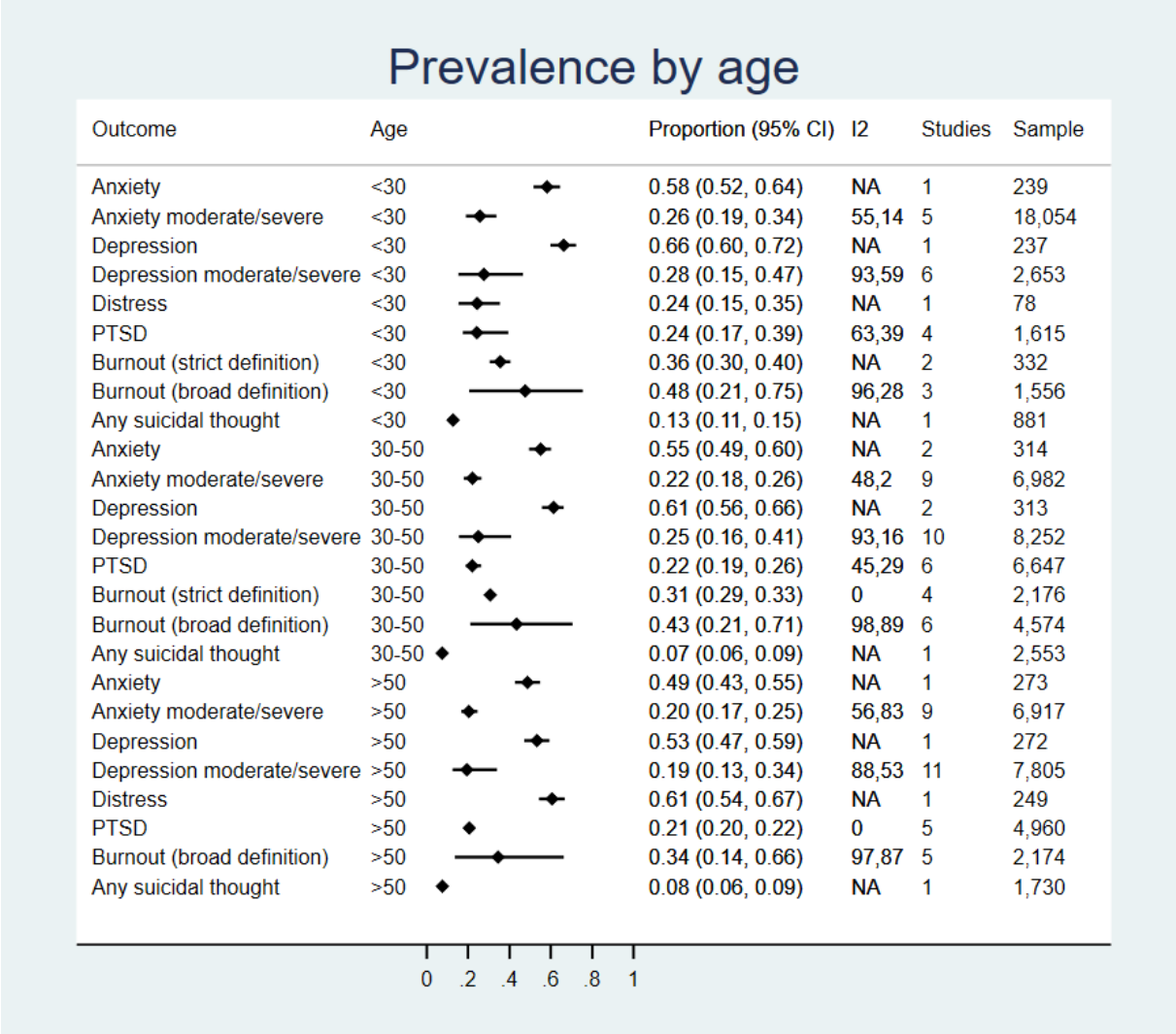
- **Prevalence by age**

A subgroup analysis on the prevalence of mental health outcomes by age of the workers was conducted, as there is previous evidence on the resilience and vulnerability to psychosocial stressors in workers of different ages across sectors.

The following results are based on data from 10 included studies that either included only participants in one of the age subgroups of interest or reported disaggregated data by age subgroups (see Figure 22).

The mental health conditions most reported by the studies by age are anxiety, depression and PTSD; the other conditions considered are far less studied from the age perspective in the literature. Overall, the prevalence of moderate and severe depression and PTSD seems to be higher in younger workers (below age 30) and decreases for all three conditions when comparing with middle-aged workers (between 30 and 50 years of age) and workers above age 50 (6%, 9% and 3%, respectively). However, no robust conclusions can be drawn, as some of these findings are based on as little as a single study on 237 participants only, as shown in the figure below.

Figure 22: Subgroup analysis by age



Source: authors' elaboration using Software Stata[39]

3.2 Good practices and recommendations

3.2.1 Identified sources of information

More than one hundred and fifty sources of information (organisations and websites) were initially identified. From these sources, interventions, good practices, recommendations and guidelines were retrieved and systematically recorded on an Excel database.

Fifty-nine experts from 19 countries around Europe and other non-EU countries were contacted. They represented different kinds of institutions, including professional bodies at EU or country level, employers, unions, academic professionals, and others. Of the 59 experts, 50 (85%) were from 14 EU Member States (Austria, Belgium, Czechia, Finland, France, Germany, Hungary, Italy, Luxembourg, The Netherlands, Slovakia, Slovenia, Spain and Sweden), 5 from an EFTA country (Norway), and 4 from 2 non-EU countries (Bosnia and Herzegovina and the United Kingdom). They represented or worked in organisations at national (66%) or EU (33%) level, mostly related to healthcare (66%) and social care (17%), and the majority were professional organisations (81%), followed by public administrations (9%), trade unions (7%) and employers' associations (3%).

Regarding sources of information, the first search strategy identified 88 organisations and websites from 15 EU/EFTA countries and 17 from non-EU countries (the United Kingdom, Canada, the USA and Australia).

A total of 14 experts agreed to participate in the Delphi survey. They were from Belgium, Czechia, Finland, Italy, Luxembourg, the Netherlands, Norway, Slovakia, Spain and the United Kingdom. In the first round, with 14 responses, participants evaluated the relevancy of the previously identified organisations and their websites and added other relevant websites and experts to contact. Similarly, in the second round, eight experts completed, when needed, the list of institutions and websites.

All the relevant sources of information (organisations and websites) identified are listed in Appendix I. In addition, the experts participating in the Delphi provided information on 35 more organisations and websites (Appendix J).

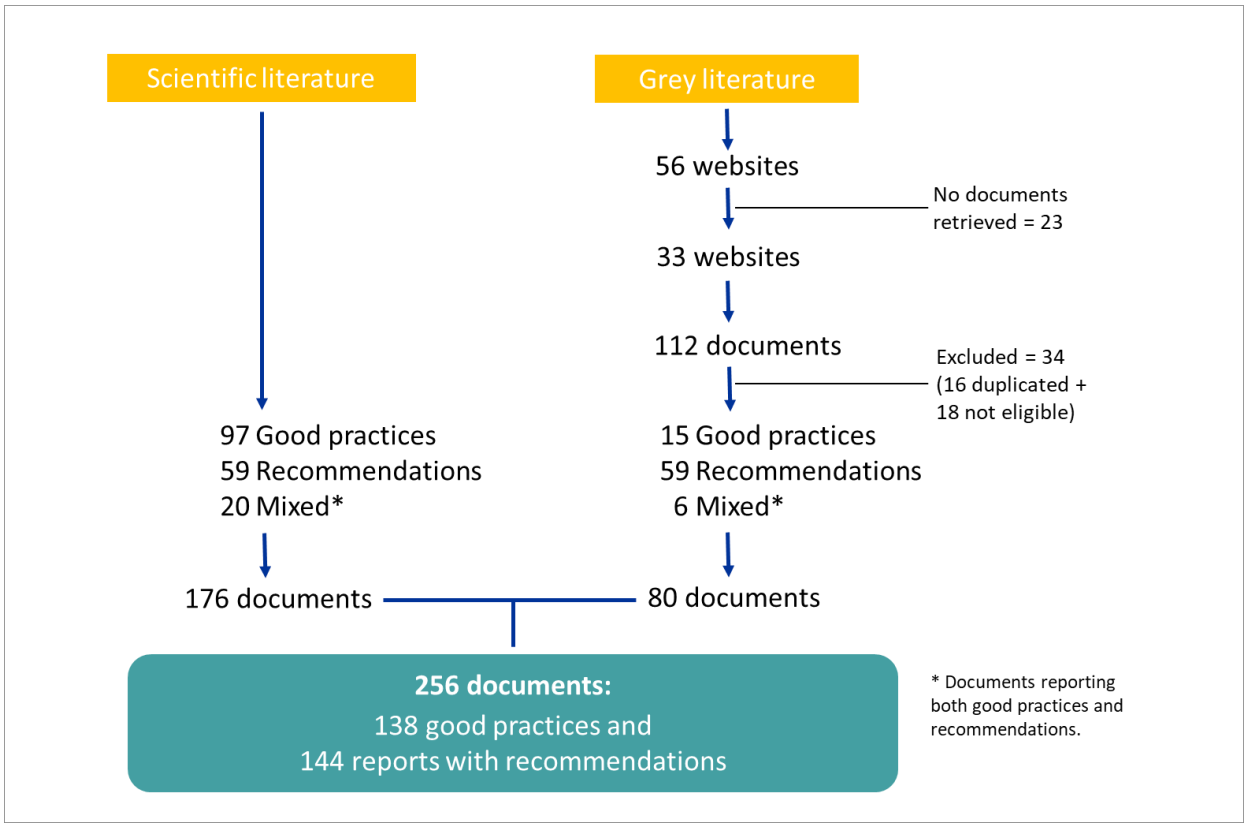
3.2.2 Results from the searches

From all the different searches conducted, a total of 256 relevant documents were identified. These included 138 documents on interventions or examples of good practices and 144 documents with recommendations (see Figure 23). They were compiled and summarised in a customised Excel database (see *Annex 2 – Collection of good practices and recommendations*[7]) and further screened.

The scientific literature searches carried out as part of the systematic review exercise identified a total of 176 eligible documents, 97 of which were examples of good practices, 59 recommendations, and 20 included both types of information. The complementary grey literature searches, reinforced by the Delphi survey process, helped identify a total of 64 websites that were screened by two team members, leading to 112 potentially informative documents. After excluding 34 duplicated or non-eligible documents, a total of 80 documents from the grey literature were finally included, with 15 being examples of good practices and interventions, 59 recommendations, and 6 including examples of both good practices and recommendations.

[7] *Annex 2 – Collection of good practices and recommendations* is available under the Related Resources section at: https://osha.europa.eu/en/publications/mental-health-challenges-eu-health-and-social-care-sector-during-covid-19-strategies-prevention-and-management

Figure 23: Results of the in-depth searches to identify examples of good practices/interventions and recommendations in the HeSCare sector



Source: authors' elaboration

3.2.3 Identified good practices and interventions

The main characteristics of the identified 138 documents on workplace good practices or interventions conducted in the HeSCare sector are presented in Table 1. The EU and EFTA country examples identified mainly came from (ordered by frequency): Italy, Spain, France, the Netherlands, Germany, Ireland, Finland, France, Belgium, Lithuania, Poland, Sweden and Switzerland, and one was an EU multi-country intervention. More than half of the good practices identified were developed in non-European countries, especially in the USA, the United Kingdom, Canada, Australia and Turkey (Table 1).

From the relevant good practices/interventions identified, 55% focused on individuals, 24% on groups of individuals or collective approaches and 21% were interventions combining individual and collective approaches. The individual interventions consisted mainly of cognitive/behavioural and physical and mental relaxation approaches, and 36% had an organisational strategy. The number of participants varied greatly, from less than 50 to more than 500, and more than half included some scale to evaluate the impact of the actions.

Table 1: Characteristics of the interventions and good practices identified

		n	%
	Total	138	100.0
Country	EU and EFTA	60	43.5
	NON-EU	78	56.5
Publication	Full report/paper	105	76.1
	Media report/News	23	16.7
	Abstract	10	7.2
Focus	Individual	76	55.1
	Collective	33	23.9
	Both	29	21.0
Type of intervention	Cognitive behavioural	72	52.2
	Physical and mental relaxation	59	42.8
	Organisational measures	50	36.2
Number of participants	500+	20	14.5
	200-499	16	11.6
	50-199	34	24.6
	<50	24	17.4
	Missing	1	0.7
Evaluation scale	Yes	77	55.8
	No	52	37.7
	Not applicable	4	2.9
	Missing	5	3.6

Source: authors' elaboration

All good practices/interventions evaluated in this report were analysed and categorised according to their main scope into one of the following three groups:

- **Cognitive behavioural**: Interventions with the aim to change how participants thought, felt and behaved in stressful situations. Examples of this include hotlines with psychologists and other types of psychological therapies.
- **Physical and mental relaxation**: Interventions aimed at reducing or counteracting the agitation caused by stress and inducing a state of mental calmness. Examples of these practices are yoga and mindfulness interventions.
- **Organisational**: Interventions that produce a change in the work environment, working methods, or resources in the workplace. Examples of these practices were break areas or hubs, leadership management, and general assistance resources such as housing for healthcare staff who were worried about infecting their families or daycare services.

The analysis also considered whether the scope of the interventions was either at an individual or collective level or if it included both dimensions.

Regarding the type of interventions (see Table 2), the most frequently identified were counselling (29.7%), mindfulness (17.4%), digital resources (14.5%), resting rooms or hubs (11.6%), organisational measures (10.9%), psychoeducation (10.1%), peer support (9.4%) and hotlines (8.7%). The majority were interventions to help individuals by providing one-to-one counselling or crisis hotlines with the involvement of psychologists. Other interventions tried to increase professionals' empowerment to manage their stress with mindfulness training or by providing helpful information through digital resources or psychoeducation with mobile applications or platforms accessible via the workplace intranet.

Collective-level practices were predominantly hubs and resting rooms. Another example of good practices at a collective level involved supporting and enhancing leadership so that managers could

improve support for their teams in times of crisis. Several interventions successfully implemented these practices; most of the time, they were complemented by individual-level interventions such as mindfulness, meditation, counselling and/or individual or group therapy.

Table 2: Types of interventions identified

Types of interventions	n	%
Counselling	42	30.3
Mindfulness	24	17.4
Digital resources	21	15.2
Resting rooms/hubs	16	11.6
Organisational measures	15	10.9
Psychoeducation	14	10.1
Peer support	13	9.4
Hotline	13	9.4
General assistance	9	6.5
Economic compensation	7	5.1
Leadership	7	5.0
Virtual reality	5	3.6
Mental health monitoring	4	2.9
Music therapy	3	2.2
Yoga	3	2.2
Risk assessment	3	2.2
Job crafting	2	1.4
Training	2	1.4
COVID-19 screening	1	0.7
Expressive writing	1	0.7
Health monitoring	1	0.7
Mediation	1	0.7
Mental health screening	1	0.7
Psychological empowerment	1	0.7
Reiki therapy	1	0.7
Storytelling	1	0.7
Telemedicine	1	0.7

Source: authors' elaboration

Table 3 provides a brief description, as reported in the source documents, for each type of intervention identified.

Table 3: Description of the identified interventions in the HeSCare sector

Intervention	Description
Counselling	Intervention intended to help workers improve their well-being, prevent and alleviate distress and maladjustment, resolve crises, and increase their ability to function better in their lives.
COVID-19 screening	Use of testing methods to identify workers who may have been infected with the SARS-CoV-2 virus to prevent its spread among other members of the organisation.
Crisis hotline	Access to phone numbers that workers can call to talk with a psychologist or other trained professional to receive immediate emergency psychological counselling.
Digital resources	Use of technology and digital media to provide information and/or psychological resources, using phone applications, web pages, videos, and/or other online resources.
Economic compensation	Financial remuneration/ or bonus in addition to the base salary.
Expressive writing	Strategy where expressing deeper thoughts and feelings through writing can help alleviate individual physical and psychological health.
General assistance	Resources provided intended to cover staff basic needs, including housing, free food, childcare, and so on.
Health monitoring	Refers to the observation and assessment of a worker's overall health status to identify changes, track progress, and detect potential issues early.
Job crafting	Process where workers can design and modify their job characteristics in line with their personal needs, goals, and skills.
Leadership	Structured programmes, or initiatives designed to improve the skills, behaviours, and effectiveness of individuals in professional leadership roles.
Meditation	Practice where the individual focuses on training attention and awareness by concentrating on their breath, or body scan or other strategies to focus on the present. It is closely related to mindfulness.
Mental health monitoring	Refers to the observation and assessment of an individual's mental health status to identify changes, track progress, and detect potential issues early.
Mindfulness	Training courses on the awareness that arises through "'paying attention in a particular way: on purpose, in the present moment, and non-judgmentally to situations in daily life"'. It brings about various positive psychological effects, including increased subjective well-being, reduced psychological symptoms and emotional reactivity, and improved behavioural regulation.
Music therapy	Systematic use of musical experiences with the aim of achieving therapeutic goals, conducted by a trained music therapist.
Organisational measures	Actions carried out within the workplace with the purpose of transforming the working environment/ or working methods with a specific purpose.
Peer support	Initiatives drawing on workers shared personal experiences, with the aim of helping to help and supporting one another.

Psychoeducation	Specific education or training with the aim of providing knowledge on certain psychological related topics to help staff improve their mental health, and improve stress management, resilience building, social support, and so on.
Psychological empowerment	Refers to structured activities, programmes, or strategies designed to increase a worker's sense of control, self-efficacy, and influence over their life and circumstances, to improve their mental well-being.
Recommendation	Advice, suggestions or proposals about a specific subject or situation.
Reiki	Biofield therapy based on the explanatory model that the fields of energy and information of living systems can be influenced to promote relaxation and stimulate a healing response.
Resting room or hub	Quiet rooms, preferably within the workplace, where workers can spend take time out for a break, rest, and may potentially receive advice or support to facilitate decompression and relaxation.
Risk assessment	A systematic process of identifying, analysing, and evaluating potential risks that could have a negative impact on workers or on the organization to determine measures to manage or mitigate them.
Self-care measures	Behaviours and actions that have the purpose of ensuring a worker's physical, mental and emotional integrity and wellbeing.
Storytelling	Use of narrative theory as a coping intervention to help find meaning (for instance, at work) and share experiences and thoughts.
Telemedicine	Encompasses remote clinical services involving communication between the patient and the healthcare professional, usually in real time.
Virtual reality	Technology that includes a head-mounted display, and involves the use of a computer, and mobile devices to navigate and interact in real time with a three-dimensional environment.
Yoga	Practices that involve physical postures, breathing exercises, and meditation to improve overall health.

Source: authors' elaboration

3.2.4 Selected examples of good practices

To provide specific and practical information helpful to workplaces, we selected 30 of the identified interventions and present them in more detail in this section.

Practices with a collective scope were prioritised over individual-oriented approaches, considering the hierarchy of controls underpinning OSH legislation and workplace prevention good practice. However, most identified interventions carried out during the pandemic in the sector had an individual or mixed approach.

The selection also aims to cover various settings in the HeSCare sector, from both EU and EFTA countries, as well as some inspiring non-EU examples (Canada, the United Kingdom and the USA).

For each case, relevant aspects of the intervention are described: the structure and content, the type of resources used, and any other additional relevant information considered potentially useful for workplaces. Facilitators supporting their correct implementation are also mentioned, such as using material and/or digital resources or specific staff or personnel for coordinating the intervention. A brief description of the evaluation that was carried out and its results (such as a decrease or increase in the parameters assessed, improvement of symptoms, and so on) is included. Finally, transferability is assessed as a key factor required to successfully implement the intervention in other workplaces, regions or countries.

Among the 30 selected examples, 17 were developed and implemented in EU and EFTA countries. The other 13 came from non-EU countries. The EU examples came mainly from Italy, France and Spain. Good practices were also included from Germany, Lithuania, Northern Ireland, Switzerland and The Netherlands. The examples were primarily actions carried out in the healthcare sector (90%). Of the selected interventions, 6 had a collective scope, 15 were targeted at individuals and 9 had a mixed scope. The types of intervention implemented in this selection of examples included cognitive behavioural interventions, physical and mental relaxation and organisational actions. In most cases, different actions were applied simultaneously.

Table 4: Description of the 30 selected examples of interventions

		n	%
	Total	30	100.0
Country	EU and EFTA	17	56.7
	NON-EU	13	43.3
Sector covered	Health care	27	90
	Social care	3	10
Scope	Collective	6	20
	Individual	15	50
	Mixed	9	30
Type of intervention	Cognitive behavioural	10	36.6
	Physical and mental relaxation	11	37.7
	Organisational	9	30.1

Source: authors' elaboration

Example 1

A local COVID-19 support platform for nursing homes

General information			
Country	France.	**Available language**	English.
Sector covered	Social care (NACE Q 88).	**Target groups**	Nursing homes.
Initiator/organisations involved			
University of Tours, with 7 departments, an engineering school and 2 technology institutes.			
Type of Institution	Public university.	**Size**	2,500 workers.

Description of the intervention	
Scope	Collective.
Type of intervention	Organisational.
Aims	To identify key elements of a local support platform for nursing homes (NHs) developed to comply with French official guidelines.
Number of participants	27 staff members from 22 NHs.
Characteristics of participants	Institution type: 10 for-profit NHs, 8 public sector NHs, 4 non-profit NHs.
Duration	Initiated March 2020.
What was done and how	Local support platform to help NHs manage COVID-19 cases, with four main components: 1. Face-to-face and remote support for training caregivers and collaborators. 2. Specialised telephone hotline to attend requests from staff 7 days a week (8 a.m. to 7 p.m.), with on-call geriatrician with initial recommendations and supportive documents. Second assistance level if multidisciplinary intervention was required. 3. Questions of common concern discussed in a collaborative online forum (COVID-19 videoconferences); mobile medical geriatric teams visited and supported caregivers. 4. Multidisciplinary board for advising NHs on crisis management and decision-making integrated by a geriatrician, an infectious disease specialist, and a palliative care physician.
Facilitators	Integration of a multidisciplinary team from relevant areas.
What was achieved (Evaluation)	▪ Qualitative with anonymous online survey: interventions limited the feeling of isolation, provided solutions to individual problems, and reassured the staff. ▪ Engagement: nine NHs needed therapeutic and ethical advice. Phone hotline received 275 calls and was used during two COVID-19 waves; 16 videoconferences and the 346 NHs in the region were invited to participate, a median of 90 NHs (26%) per videoconference. Mobile geriatric medical teams with 84 interventions in 38 NHs.
Transferability	▪ Consider existing federal or government guidelines. ▪ Offer different ways to reach groups: face to face, video, and so on.

References and resources

Coulongeat M, et al. A local COVID-19 support platform for nursing homes: Feedback and perspectives. J Am Med Dir Assoc. 2021;22(8):1599–601. https://doi.org/10.1016/j.jamda.2021.06.001 [164].

Example 2

Organisational strategies by nursing home managers in first COVID-19 wave

General information			
Country	Germany.	**Available language**	English.
Sector covered	Social care (NACE Q 888).	**Target groups**	Nursing home managers.
Initiator/organisations involved			
University of Cologne, Martin Luther University, Witten/Herdecke University, Rosenheim Technical University of Applied Sciences, Heidelberg University, Heinrich-Heine-University.			
Type of Institution	Public and private universities/Nursing homes.	**Size**	Beds per nursing home: 96.8.

Description of the intervention	
Scope	Collective.
Type of intervention	Organisational.
Aims	To evaluate organisational strategies for nursing homes (NHs).
Number of participants	78 NH and wards managers.
Characteristics of participants	40 NH managers, 38 ward managers.
Duration	3 months (from May to July 2020).
What was done and how	1. Multi-professional crisis task force: pandemic concept, changes of prevention plan and information to employees. 2. Reorganising structures to ensure minimal physical contact. 3. Continuous adaptation and implementation of hygiene plans, with hand disinfection and other preventive measures. 4. Changes in staff deployment. 5. Managing communication demands (video calls and others), as lockdown hindered contact among managers, staff and families. 6. Use of informal community networks (schools performing online for entertainment, colleagues sewing face masks and others).
Facilitators	▪ Multidisciplinary team of professionals as the crisis task force. ▪ Recruitment of staff from closed services. ▪ Informal support networks from outside the institutions.
What was achieved (Evaluation)	Telephone interviews with NH and ward managers from 43 NHs, using 2 semi-structured interview guides for NH managers and ward managers, to identify the organisational topics mentioned above.
Transferability	▪ Members from the task force have an extended workload and are constantly on call, so debriefing and recognition are important. ▪ New material (tablets, screens, and so on) may be costly. ▪ Staff may require training before using the new equipment. ▪ Continuous adaptation of protocols and plans must be carried out, based on official sources of information. ▪ Involve the community to give staff additional support.

References and resources

Sander M, et al. Challenges, strategies and consequences from the perspective of German nursing home managers during the first wave of the COVID-19 pandemic - a qualitative interview study. BMC Geriatr. 2023;23(1). https://doi.org/10.1186/s12877-023-03787-4 [165].

Example 3

Building resilience for healthcare leaders during the COVID-19 pandemic

General information			
Country	Italy.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86). Social care (NACE Q 88).	**Target groups**	Leaders/managers.
Initiator/organisations involved			
Resilience research unit, D. Psychology, Università Cattolica del Sacro Cuore (Milan).			
Type of Institution	Private university.	**Size**	4,000 workers.

Description of the intervention	
Scope	Collective.
Type of intervention	Cognitive behavioural/psychoeducation.
Aims	To improve resilience in healthcare leaders dealing with the COVID-19.
Number of participants	17 of 21 healthcare leaders.
Characteristics of participants	Number of females/males: 14 females, 3 males. Number by department: 8 in child protection, 8 in elderly care.
Duration	4 months (from April to July 2020).
What was done and how	Information distributed through managers and e-meeting. Online programme including 10 resilience protective factors: gratitude and positive outlook, self-confidence, flexibility, meaning-making, mindfulness and self-care, structure, accountability, supportive relationships, a powerful identity and culture. Two stages: ▪ A needs analysis to identify the psychosocial needs of healthcare professionals dealing with a pandemic. ▪ 10 sessions focused on self-identified protective factors: initial supervision on support to their teams, inspirational videos, narrations or photos, tailored workshops, group discussion and lessons learnt.
Facilitators	▪ An evidence-informed curriculum shown to improve wellbeing, following a multisystemic resilience-oriented approach. ▪ An official online platform to deliver the programme.
What was achieved (Evaluation)	Before-and-after evaluation, using self-reported questionnaires: ▪ Leaders: Reduced stress and burnout, increased positive outcomes. ▪ Staff members: Decrease in work-related and general stress, increased resilience, self-efficacy and resourced resilience. ▪ Programme satisfaction: High rates of general perceived usefulness.
Transferability	▪ Programmes or interventions should mainly focus on managers or leaders, as these will most likely also benefit their staff. ▪ If adapting an existing programme, consider current circumstances and challenges of leaders or staff to obtain maximum benefit.

References and resources

Giordano F, et al. Building resilience for healthcare professionals working in an Italian red zone during the COVID-19 outbreak: A pilot study. Stress Health. 2022;38(2):234–48. https://doi.org/10.1002/smi.3085, https://resilienceresearch.org/welcome-r2/[166].

Example 4

Mental health programme for health workers during the COVID-19 pandemic

General information			
Country	Spanish.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	Healthcare workers.
Initiator/organisations involved			
Fundación Jiménez Díaz, public medical centre in Madrid.			
Type of Institution	University Hospital.	**Size**	660 beds, 2,500 workers.

Description of the intervention	
Scope	Mixed.
Type of intervention	Organisational/Leadership engagement. Cognitive behavioural/Psychoeducation, counselling.
Aims	To provide mental health support through a programme with intervention strategies accessible to healthcare professionals.
Number of participants	928 in the first wave. 155 in the second wave.
Characteristics of participants	Not mentioned.
Duration	8 weeks: from March to May 2020. 16 weeks: from August to December 2020.
What was done and how	▪ Psychoeducational and preventive intervention with information and coping resources to normalise the psychological response to COVID-19 and prevent its stigmatisation; mindfulness exercises. ▪ Emotional regulation sessions for team managers. ▪ Face-to-face interventions, at group level. The Mental Health team included 2 clinical psychologists, 2 psychiatrists and 8 trainees in psychiatry and psychology. First wave: on-site crisis-oriented sessions. Second wave: focus on anxiety, depressive and post-traumatic symptoms. ▪ Individual intervention at professionals' request, in person or via telephone.
Facilitators	▪ Coordination of clinical psychologists from different hospitals in Madrid facilitated homogeneous programmes for health professionals. ▪ Different channels were available for requesting individual support. ▪ Nurse managers requested psychological support for their teams in periods of high stress, were also involved in providing emotional and problem-solving support to their team, listening to requests and concerns.
What was achieved (Evaluation)	▪ First wave: high attendance of group sessions (n=129), with 7 participants per session and 928 in total. ▪ Second wave: 31 sessions, with 155 attendees (intensive care and respiratory care units). ▪ Individual support increased during April, May and September.
Transferability	▪ Prioritise overloaded units and workers with direct-patient care, higher exposure to COVID, more severe patients and frequent deaths.

- Consider possible ways to guarantee effective dissemination of the programme (formal channels and face-to-face visits at units).
- Provide team leaders with necessary skills to support their teams.

References and resources

Jiménez-Giménez M, et al. Taking care of those who care: Attending psychological needs of health workers in a hospital in Madrid (Spain) during the COVID-19 pandemic. Curr Psychiatry Rep. 2021 Jun 19;23(7):44. https://doi.org/10.1007/s11920-021-01253-9[167]

Example 5

Monitoring psychological condition of hospital staff

General information			
Country	Italy.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	Healthcare workers.
Initiator/organisations involved			
Azienda Ospedaliero Universitaria Pisada, hospital in Pisa.			
Type of Institution	University Hospital.	**Size**	8,000 workers.

Description of the intervention	
Scope	Mixed.
Type of intervention	Organisational/Mental health monitoring. Cognitive behavioural/Counselling.
Aims	To monitor workers suffering from pre-existing psychiatric and psychological problems prior to the start of the pandemic; to reduce potential COVID-19-related risk factors and provide rapid and targeted help.
Number of participants	106 healthcare professionals.
Characteristics of participants	Number of females/males: 79 females, 27 males. 7 physicians, 58 nurses, 41 other allied healthcare professionals.
Duration	3 months (from March to May 2020).
What was done and how	Anonymous email sent by workers to request support, triage by 2 psychologists, and PsicoCOVID-19 group with psychiatrists and psychologists: 1. Psychiatric approach: monitoring of psychopathological parameters and recommendation of psychiatric therapies, and fitness for work in COVID units; and occupational physician evaluates preventive measures. 2. Psychological consultation: scientific research-based cognitive behavioural approach and suitable intervention strategies. 3. Support offered to newly hired employees.
Facilitators	▪ Occupational multidisciplinary team with previous experience in work-related stress and emergency management. ▪ Contact with hospital managers and awareness of hospital protocols.
What was achieved (Evaluation)	▪ Quantitative evaluation: 81% of participants were already monitored before the pandemic and underwent a modification of their therapy after undergoing triage. ▪ Qualitative evaluation: Overall satisfaction reported; treated by professionals from their own organisation; learned how to tackle their emotional distress and shared tips with colleagues to help them.
Transferability	▪ Approval and support from hospital managers; knowledge of hospital protocols to develop the intervention according to staff needs. ▪ Use of a medium of contact that guarantees staff anonymity. ▪ Use of psychological or psychiatric scientific evidence-based therapies.

References and resources

Buselli R, et al. Psychological care of health workers during the COVID-19 outbreak in Italy: Preliminary report of an Occupational Health Department (AOUP) responsible for monitoring hospital staff condition. Sustainability. 2020;12(12). https://doi.org/10.3390/su12125039[168].

Example 6

Integrated psychological intervention for frontline healthcare workers

General information			
Country	Spain.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	Healthcare workers.
Initiator/organisations involved			
	IAS-Institut d'Assistència Sanitària, hospital in Girona.		
Type of Institution	Regional public hospital.	**Size**	337 beds, 818 workers.

Description of the intervention	
Scope	Mixed.
Type of intervention	Organisational/mental health monitoring, training. Cognitive behavioural/crisis hotline, counselling.
Aims	To support psychological needs of hospital staff during the first wave.
Number of participants	820 healthcare workers.
Characteristics of participant	Not mentioned.
Duration	4 months (March 2020 to June 2020).
What was done and how	▪ Daily scans by psychologists to identify individual and group needs. ▪ Hotline 12 hours a day, from 8 a.m to 8 p.m, 7 days a week. ▪ Contact email address, disseminated in wards and by managers. ▪ Educational digital materials to improve professionals' skills when communicating with patients' families. ▪ Group interventions based on the STEP (Support Tools for emergency Psychology). Three phases: Cognitive (STEP 1.0), Ventilation (STEP 1.5) and Recovery (STEP 2.0). ▪ Individual intervention to professionals who required therapy.
Facilitators	▪ Voluntary multidisciplinary frontline team of 8 psychologists in the organisation, who scanned their assigned wards to identify needs. ▪ Educational materials for handling patients and their families.
What was achieved (Evaluation)	▪ Quantitative: 300 professionals participated in STEP 1.0, 82 in STEP 1.5, and 6 in STEP 2.0. Individual interventions to 10 professionals. Questionnaires (n=203): preference of emotional support, group format during working shifts. ▪ Qualitative: paper note transcriptions from the programme signalling professional's needs and experiences, and identification of individuals requiring individual therapy and focus groups.
Transferability	▪ Prepare educational materials on specific relevant topics. ▪ Collective and individual interventions as needed by professionals. ▪ Interventions carried out when accessible for most staff. ▪ Personal protection equipment available for psychologists when on site.

References and resources

Frigola-Capell E, et al. Integrated psychological intervention programme for frontline healthcare workers during the COVID-19 pandemic. A qualitative study. Arch Prev Riesgos Labor.2024; 27(2):157-72 [169].

Example 7

The Bulle, relaxation hub for healthcare workers during the COVID-19 pandemic

General information			
Country	France.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Focus groups**	Healthcare workers, including technical and administrative staff.
Initiator/organisations involved			
Cochin Hospital, section of the Faculté de Médecine Paris-Cité.			
Type of Institution	Public hospital.	**Size**	6,000 workers.

Description of the intervention	
Scope	Mixed (individual and collective).
Type of intervention	Physical and mental relaxation/Relaxation hub, physical activities.
Aims	To prevent psychological impact on healthcare staff related to the lockdown due to the COVID-19 pandemic.
Number of participants	800 members from the clinical and non-clinical hospital staff.
Characteristics of participants	Number of females/males: 704 females, 96 males. 88 physicians, 456 nurses, 88 allied healthcare professionals, 88 administrative staff.
Duration	4 weeks.
What was done and how	Space for staff relaxation in a chapel cloister in the hospital, with a reception room, cloakroom, activity room and garden; seven days a week (9 a.m. to 9 p.m.), allowed during working hours. Staff could sign up to activities online or in the reception area, where they received information about activities provided. Music, drinks and snacks from donations; informal discussions and available support; multipurpose room where activities took place according to a daily programme, including individual Shiatsu massage therapy, Pilates, contactless boxing, and sophrology relaxation in groups.
Facilitators	▪ Trained skilled professionals (physical therapists, coaches). ▪ Donations from the general public. ▪ Staff in the reception offered peer-to-peer support. ▪ Hours of access were accessible for staff working at any shift.
What was achieved (Evaluation)	▪ More than 800 visits (379 visitors, median 3 visits/person). ▪ Feedback requested via email, free-text qualitative survey. Positive responses mostly received, praising the space for allowing staff to carry out self-care within the workplace, and improving their quality of life at work, and productivity.
Transferability	When there are too many visitors, a system is needed to prioritise access. Hygiene measures may be necessary. Set up access times to the hub considering shifts or working hours. Include other activities for relaxation: yoga, mindfulness, and so on.

References and resources

Lefèvre H, et al. The Bulle: Support and Prevention of Psychological Decompensation of Health Care Workers During the Trauma of the COVID-19 Epidemic. J Pain Symptom Manage. 2021;61(2): https://doi.org/10.1016/j.jpainsymman.2020.09.023. PMID: 32961219; PMCID: PMC7836408[170].

Example 8

FOREST-Therapist-guided cognitive behavioural internet-based intervention for stress recovery of nurses

General information			
Country	Lithuania.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	Nurses.
Initiator/organisations involved			
Neuroscience, psychological and clinical institutions: Vilnius University (Lithuania), Linköping University (Sweden), Karolinska Institute (Sweden).			
Type of Institution	Public universities.	**Size**	Not applicable.

Description of the intervention	
Scope	Individual.
Type of intervention	Cognitive behavioural/psychoeducation, counselling. Physical and mental relaxation/mindfulness.
Aims	To help nurses recover from stress amid the COVID-19 pandemic.
Number of participants	168 medical nurses.
Characteristics of participants	Number of females/males: 163 females, 5 males. Number by occupation: 160 nurses/8 assistant nurses.
Duration	6 weeks.
What was done and how	Team of 5 clinical psychologists and 5 Master students were trained and given weekly supervision to deliver a 6-week programme based on cognitive behaviour therapy principles and mindfulness, involving psychoeducation, 2 to 3 mindfulness exercises, and the opportunity to contact a therapist. Access to new modules provided weekly, phone contact after 3 weeks and at the end of the intervention (interview). Psychologists provided information on mental health services if mental health deteriorated.
Facilitators	▪ An already-existing intervention that could be modified. ▪ A team of psychology professionals to conduct the intervention. ▪ An online secure platform to ensure safe and private communication.
What was achieved (Evaluation)	▪ Quantitative, intervention group versus late control group. Questionnaires: stress recovery, psychological detachment, relaxation, mastery and control were improved; perceived stress, depression, and anxiety symptoms decreased; wellbeing increased in the intervention group over 3 months. ▪ Qualitative: programme was useful (84%), satisfactory (87%), easy to use (92%), improved mental well-being (74%) and improved physical health (46%).
Transferability	▪ Consider if there is an existing programme that can be adapted. ▪ If possible, design the intervention in a way that allows participants to choose the intensity at which they access it. ▪ To guarantee a safe and private medium for staff conducting the intervention and participants to communicate.

References and resources

Dumarkaite A, et al. The efficacy of the internet-based stress recovery intervention FOREST for nurses amid the COVID-19 pandemic: A randomized controlled trial. Int J Nurs Stud. 2023;138. https://doi.org/10.1016/j.ijnurstu.2022.104408. PMID: 36527859[171].

Example 9

Covid-Psy Hotline: support for hospital workers during the COVID-19 pandemic

General information			
Country	France.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	Healthcare workers.

Initiator/organisations involved			
Assistance Publique – Hôpitaux de Paris: university hospital trust operating in Paris linked to the University of Paris.			
Type of Institution	University Hospitals.	**Size**	39 hospitals with 12,100 physicians, 55,200 allied healthcare professionals and 16,500 administrative staff.

Description of the intervention	
Scope	Individual.
Type of intervention	Cognitive behavioural/Crisis hotline.
Aims	To provide psychosocial support to hospital workers.
Number of participants	149 calls from healthcare and non-healthcare staff.
Characteristic of participants	Number of males/females: 30 males, 119 females. 22 physicians, 41 nurses, 36 allied healthcare professionals, 32 administrative and support staff.
Duration	1 month.
What was done and how	A crisis hotline was set up; volunteer psychologists and psychiatrists received a 30-min. phone session on brief crisis intervention, assessment and crisis resolution or referrals with supervision when situations required a psychiatric opinion. The crisis hotline consisted of a brief individual response, referrals to other psychosocial supports or psychiatric consultation. Second-line interventions: Call to a psychiatrist 24/7, a specialised trauma telephone platform available 9.30 a.m. to 6 p.m., Monday to Friday, COVID-19 screening appointments at the Occupational Health and Safety department, orientation to other psychological support.
Facilitators	▪ Official mandate to guarantee feasibility and successful promotion. ▪ Volunteering of certified psychologists and psychiatrists. ▪ A messaging group to facilitate communication among volunteers.
What was achieved (Evaluation)	Evaluation was carried out after the first month: 149 calls received, mean of 5.73 calls per day with average duration of 18.5 minutes, frontline healthcare workers from 44 departments, anxiety symptoms (49%).
Transferability	▪ Communication and agreement with the institution's directive board is vital to develop and implement the intervention. ▪ Promotion of and information about the intervention to staff. ▪ Functional platform needed for the correct functioning of the hotline, as well as guaranteeing participant anonymity. ▪ If the number of calls is high, the number of psychologists and psychiatrists may need to be increased.

References and resources

Geoffroy PA, et al. Psychological support system for hospital workers during the Covid-19 outbreak: Rapid design and implementation of the Covid-Psy hotline. Front Psychiatry. 2020;11. https://doi.org/10.3389/fpsyt.2020.00511[172].

Example 10

Eye movement desensitization and reprocessing to promote mental health in healthcare workers during the COVID-19 pandemic

General information			
Country	Italy.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	Healthcare workers.
Initiator/organisations involved			
Two hospitals of Azienda Socio Sanitaria Territoriale (Asst) of Lecco, Northern Italy: A. Manzoni Hospital in Lecco, and L. Mandic Hospital in Merate.			
Type of Institution	Local public health institutions.	**Size**	Not reported.

Description of the intervention	
Scope	Individual.
Type of interventions	Cognitive behavioural/Eye movement desensitisation and reprocessing (EMDR).
Aim	To promote mental health of healthcare workers through an eye movement desensitisation and reprocessing integrative group treatment protocol (EMDR-IGTP).
Number of participants	150 healthcare workers.
Characteristic of participants	Number of males/females: 15 males, 135 females.
Duration	4 weeks.
What was done and how	EMDR-IGT protocol with 3 sessions of 90 minutes each, groups of 2 to 4 healthcare workers, 8 phases of the standard EMDR individual treatment in a group format, art therapy and the butterfly hug (BH) as a self-administered bilateral stimulation method to reprocess traumatic material. Also breathing exercises as stabilisation exercises as a trigger due to traumatic experiences related to COVID-19 patient care.
Facilitators	▪ EMDR: evidence-based therapy recommended for managing stress disorders and to treat PTSD, with a pre-existing protocol adapted to COVID-19 emergency context. ▪ Space within the hospital that guaranteed participant privacy. ▪ 14 psychologists qualified in the application of EMDR therapy.
What was achieved (Evaluation)	▪ Before and after evaluations using IES-R. ▪ Reduction of post-treatment values alleviating emotional suffering associated with traumatic experience. Rapid reduction of psychological distress. ▪ The effect was maintained over time despite prolonged exposure to the emergency and the possibility of re-traumatisation; increased resilience.
Transferability	▪ It may be necessary to adapt the intervention. ▪ Qualified personnel will be needed to carry out the intervention.

References and resources

Fogliato E, et al. Promoting Mental Health in Healthcare Workers in Hospitals Through Psychological Group Support With Eye Movement Desensitization and Reprocessing During COVID-19 Pandemic: An Observational Study. Front Psychol. 2022;12:794178. https://doi.org/10.3389/fpsyg.2021.794178 [173].

Example 11

Music therapy to reduce stress in clinical staff involved in the COVID-19 pandemic

General information			
Country	Italy.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	Healthcare workers.
Initiator/organisations involved			
Policlinico di Bari: University Hospital of Bari and the Paediatric Hospital 'Giovanni XXVII'			
Type of Institution	University hospital.	**Size**	168 beds.

Description of the intervention	
Scope	Individual.
Type of interventions	Physical and mental relaxation/music therapy.
Aim	To reduce stress and improve wellbeing in clinical staff caring for COVID-19 patients through support music therapy.
Number of participants	34 clinical staff.
Characteristics of participants	Number of males/females: 12 males, 22 females. Number by occupation: 14 physicians, 20 nurses.
Duration	8 weeks (April 2020 to May 2020).
What was done and how	Specific playlists (PLs): to favour relaxation and reduce stress (Breathing PL), to recover energy and support concentration (Energy PL), to release tension and instil calm (Serenity PL). ▪ Breathing PL: music tracks structured from classical music of Western tradition and modern selections with similar features. ▪ Energy PL and Serenity PL: pop, rock and jazz music. End of week 1, assessment through interviews and prepared 2 playlists for each worker to listen to the following week, for 4 weeks, when and how to listen are at worker's discretion.
Facilitators	▪ Hotel accommodation available to each recruited worker, to prevent the risk of infection and help find appropriate accommodation. ▪ Certified and trained music therapists.
What was achieved (Evaluation)	▪ Quantitative: before and after questionnaire on tiredness, sadness, fear and worry, with decrease of tiredness, intensity of sadness, fear and worry. ▪ Qualitative: weekly interviews of a researcher to participants with 32.2% qualification of 10; 3.6% qualification of 0.
Transferability	▪ Certified personnel to correctly implement the intervention. ▪ If there are restrictions and if monitoring in place is not possible, find an alternative. ▪ Adverse effects may occur as a consequence of the intervention: overstimulation and loss of contact with reality. ▪ If implemented in the workplace, an appropriate place will be needed.

References and resources

Giordano F, et al. Receptive music therapy to reduce stress and improve wellbeing in Italian clinical staff involved in COVID-19 pandemic: A preliminary study. Arts Psychother. 2020;70. https://doi.org/10.1016/j.aip.2020.101688[174].

Example 12

Mindfulness-based stress reduction for healthcare workers during the COVID-19 pandemic

General information			
Country	Italy.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	Healthcare workers.
Initiator/organisations involved			
Fondazione Monasterio: two hospitals in Pisa and Massa.			
Type of Institution	University Hospital.	**Size**	550 workers.

Description of the intervention	
Scope	Individual.
Type of intervention	Physical and mental relaxation/Mindfulness.
Aims	To implement a mindfulness-based intervention to reduce distress and improve the quality of life of healthcare workers, at different periods during the pandemic.
Number of participants	48 healthcare front-line professionals.
Characteristics of participants	Number of females/males: 42 females, 8 males. Number by occupation: 9 physicians, 27 nurses and 13 other allied workers.
Duration	▪ Group I, pre-COVID-19 pandemic period (15 participants). ▪ Group II, COVID-19 pandemic period (18 participants). ▪ Group III, COVID-19 post-pandemic (15 participants).
What was done and how	Mindfulness-based stress reduction (MBSR) training programme, with 8 weekly sessions of 2 hours each, including: 1. topics related to meditative practice. 2. guided experiential exercises: focus on the breath, meditation on an object of interest for the person, and so on. 3. sharing experiences and discussion. 4. recommendation of 30-min. daily meditation practice at home.
Facilitators	▪ A psychologist with more than 5 years of experience in practising and teaching MBSR, available for any queries before the start of the sessions. ▪ A quiet, heated classroom.
What was achieved (Evaluation)	Before and after evaluation with standardised questionnaires: reduced scores in groups I and III, no changes in group II. Psychological wellbeing increased in groups I and III.
Transferability	▪ MBSR is an evidence-based intervention that needs to be conducted by an accredited professional. ▪ Ideally, the expert conducting the mindfulness sessions should have the time and availability to assist participants before and after the sessions. ▪ A quiet and private space is required to carry out the sessions to ensure the comfort and privacy of the participants.

References and resources

Marotta M, et al. Effect of Mindfulness-Based Stress Reduction on the well-being, burnout and stress of Italian healthcare professionals during the COVID-19 pandemic. J Clin Med. 2022;11(11):3136. https://doi.org/10.3390/jcm11113136[175].

Example 13

Virtual reality relaxation for intensive care nurses during the COVID-19 pandemic

General information			
Country	The Netherlands.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	Intensive Care Unit (ICU) nurses.
Initiator/organisations involved			
University Medical Centre Groningen.			
Type of Institution	Supraregional hospital.	**Size**	1,400 beds, 10,000 workers.

Description of the intervention	
Scope	Individual.
Type of intervention	Physical and mental relaxation.
Aims	ICU nurses working with COVID-19 patients to experience virtual reality to reduce their experienced stress.
Number of participants	86 ICU nurses.
Characteristics of participants	Not mentioned.
Duration	4 weeks, from May 2020 to June 2020.
What was done and how	Oculus Go stand-alone head-mounted display running the VRelax, a plug-play application; participants could navigate through high quality immersive 360-degrees videos of calming natural environments including a beach and underwater swimming with dolphins. The videos had interactive elements. The recommended minimal time of use was 10 minutes, longer duration was also allowed.
Facilitators	▪ Encouragement and assistance from other members of staff (medical students), who were trained in how to use the VRelax. ▪ A separate room available to carry out the intervention. ▪ Appropriate equipment, devices and a comfortable swivel armchair. ▪ An easy-to-use application programme to operate the VRelax
What was achieved (Evaluation)	▪ Quantitative: 86 nurses used VRelax at least once, 66 filled out the VAS-stress scale before and after use. Mean perceived stress lowered by 39.9% after use. ▪ Qualitative: 53 mentioned it was helpful; others experienced immediate decrease of stress and increased resilience.
Transferability	▪ Appropriate devices are required to run the application. ▪ Appropriate training is required so those operating the VR equipment will know how to handle it correctly. ▪ Consider that certain conditions may contravene the use of VR and cause possible adverse symptoms (nausea and dizziness). ▪ Consider that staff members with a high workload and a conflicting schedule may have difficulties accessing the VRelax.

References and resources

Nijland JWHM, et al. Virtual Reality Relaxation for Reducing Perceived Stress of Intensive Care Nurses During the COVID-19 Pandemic. Frontiers in Psychology. 2021;12:1-8. https://doi.org/10.3389/fpsyg.2021.706527[176].

Example 14

Breath-centred virtual mind-body medicine to reduces COVID-related stress in female healthcare workers

General information			
Country	Northern Ireland.	**Available language**	English.
Sector covered	Social care (NACE Q86 and 88).	**Target groups**	Health, social staff and other related professionals.
Initiator/organisations involved			
Regional Integrated Support for Education in Northern Ireland (RISE NI), regional early intervention service to support children in preschool and mainstream primary school settings.			
Type of Institution	Regional trust.	**Size**	100 workers.

Description of the intervention	
Scope	Individual.
Type of intervention	Physical and mental relaxation/Breath-body-mind therapy.
Aims	To implement the Breath-body-mind therapy Introductory course (BBMIC) to reduce COVID-related stress.
Number of participants	39 workers.
Target groups	All female. Number of doctors/nurses/aides/other professionals: 8 behavioural specialists, 8 occupational therapists, 7 speech and language therapists, 5 physiotherapists, 7 therapy assistants, 2 social workers, 1 clinical psychologist, 8 team leaders.
Duration	6 weeks, with data collection from December 2020 to April 2021.
What was done and how	BBMIC: manualised short training provided live online for 3 consecutive days, each day, with 3 rounds including: ▪ Activating practices: tapping the body to music or ‘Ha’ breath; ▪ Autonomic balancing practices; ▪ Coherent breathing and breath moving; ▪ Bottom-up body scan, soft relaxing music, or Open Focus Attention Training.
Facilitators	▪ Use of manualised, previously tested BBM interventions taught by an experienced faculty to ensure high-quality, consistent teaching. ▪ Teachers had daily meetings to foster discussion with participants and receive guidance from the faculty expert.
What was achieved (Evaluation)	Before and after standardised questionnaires. Score improved significantly 11 weeks post-intervention, including perceived stress, stress overload, and exhaustion. Revitalisation and tranquillity scores significantly improved. 60% reported moderate to very strong improvements in 22 indicators of psychophysiological state.
Transferability	▪ Certified professionals must conduct the intervention. ▪ Some members may require individual coaching.

References and resources

Gerbarg PL, et al. Breath-centered virtual mind-body medicine reduces COVID-related stress in women healthcare workers of the Regional Integrated Support for Education in Northern Ireland: a single group study. Front Psychiatry. 2023;14:1199819. https://doi.org/10.3389/fpsyt.2023.1199819 [177].

Example 15

Expressive writing for healthcare workers' psychological adjustment during the COVID-19 pandemic

General information			
Country	Italy.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	Frontline healthcare workers.
Initiator/organisations involved			
Faculty of Psychology of the Università degli Studi eCampus, Department of Psychology of the Università Cattolica del Sacro Cuore.			
Type of Institution	Private Universities.	**Size**	480 workers.

Description of the intervention	
Scope	Individual.
Type of intervention	Cognitive behavioural/Expressive writing.
Aim	To implement expressive writing in reducing the psychological distress of healthcare workers during the COVID-19.
Number of participants	55 healthcare staff.
Characteristics of participants	Number of males/females:14 males, 41 females. 15 physicians, 30 nurses, 10 allied professionals.
Duration	3 days, with data collection from April 2020 to June 2020.
What was done and how	Two groups: ▪ Expressive writing (n=30): writing for 3 consecutive days, for 20 minutes, their most profound thoughts and feelings about the most stressful experiences that happened in their jobs. ▪ Neutral writing (n=25): writing for 3 consecutive days, for 20 minutes, their experiences and actions during the pandemic without listing their feelings or opinions.
Facilitators	▪ Use of a standardised protocol for the intervention. ▪ May be done from home, no interference with working hours.
What was achieved (Evaluation)	Evaluation 1 week after the intervention, validated scales: ▪ Reduction in PTSD, depression symptoms and Global Severity Index in expressive writing group. ▪ Increase in depression symptoms and a higher Global Severity Index in neutral writing group.
Transferability	▪ Analyse if there is a standardised protocol with specific instructions to adequately apply the intervention. ▪ Provide information about the intervention: what it is about, how to do it and its benefits; within the institution and/or target groups. ▪ Consider providing information materials to interested staff. ▪ A follow-up with a certified professional may be required to maintain the beneficial effects from the intervention.

References and resources

Procaccia R, Segre G, Tamanza G, Manzoni GM. Benefits of expressive writing on healthcare workers' psychological adjustment during the COVID-19 pandemic. Front Psychol. 2021;12[178].

Example 16

Brief psychological intervention for healthcare workers during the COVID-19 pandemic

General information			
Country	Switzerland.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	Healthcare workers.
Initiator/organisations involved			
University Hospital Zurich Foundation (hospital); Klaus Grawe Foundation (research institute in clinical psychology and psychotherapy).			
Type of Institution	Research hospital.	**Size**	980 beds.

Description of the intervention	
Scope	Individual.
Type of intervention	Cognitive behavioural/Counselling.
Aims	To reduce psychological distress in healthcare workers implementing a brief psychological intervention. Other secondary outcomes also assessed
Number of participants	160 healthcare front-line professionals.
Characteristics of participants	Number of males/females: 29 males,131 females. 64 physicians, 61 nurses, 35 allied healthcare professionals.
Duration	4 weeks.
What was done and how	Two-arm, single blinded randomized controlled trial (RCT). Two groups were randomly assigned to: ▪ RECHARGE- bief intervention teaching behavioral strategies (intervention, n=82): 60-min. remote sessions over 2 to 4 weeks delivered by healthcare workers' peers. Includes 4 sessions on work stress during the pandemic, problem-solving strategies; activities to promote social interaction, and prevention in stressful situations identified with their peers in management strategies. ▪ ATAU – active treatment as usual (information on stress management; n=78): referral to 2 webpages with well-validated coping strategies for managing psychological distress.
Facilitators	▪ Certified skilled trainers supervised the training and participated in the adaptation of the original WHO programme. ▪ Use of certified manuals, video records and a checklist to ensure those delivering the intervention were properly trained.
What was achieved (Evaluation)	▪ Before and after evaluation using validated scales. ▪ RECHARGE group: greater reductions than ATAU in most scales, except PTSD, anxiety, depression, or work ability, that did not change. The effect of RECHARGE was no longer evident at the 6-month assessment.
Transferability	▪ Have certified skilled staff and use validated manuals to guarantee the intervention is implemented correctly. ▪ Further support or booster tools may be required to maintain the beneficial effects.

References and resources

Morina N, et al. Efficacy of a brief psychological intervention to reduce distress in healthcare workers during the COVID-19 pandemic: A randomized controlled trial. Psychol Trauma. 2023;15(Suppl 2): S371–83. https://doi.org/10.1037/tra0001524 [179].

Example 17

Telephone support system for health professionals confined by COVID-19

Description of the intervention			
Country	Spain.	**Available language**	English, Spanish.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	Healthcare workers in home confinement for COVID-10 or close contact.
Initiator/organisations involved			
North Metropolitan Primary Care Area of Barcelona.			
Type of Institution	Primary Care Service.	**Size**	4,500 workers.

Description of the intervention	
Scope	Individual.
Type of intervention	Health monitoring. Cognitive behavioural/counselling.
Aims	To implement a telephone system providing clinical follow-up and psychological support to health professionals confined by COVID-19.
Number of participants	286 healthcare professionals.
Characteristics of participants	Number of females/males: 234 females, 52 males. 80 physicians, 102 nurses, 104 other allied healthcare professionals.
Duration	3 months (March 2020 to May 2020).
What was done and how	Telephone service system with 'biopsychosocial' orientation to professionals prescribed with home confinement, to provide follow-up of the clinical evolution and offering recommendations and support in psychosocial issues related to the isolation. Calls at least every 72 hours. Follow-up team: 16 nursing professionals, 5 family physicians, 1 psychiatrist, 5 psychologists, and 1 social worker from the occupational health service.
Facilitators	▪ Interdisciplinary team of healthcare professionals. ▪ Telephone-based system to allow quick and accessible.
What was achieved (Evaluation)	Ad hoc questionnaire to evaluate the system. The mean overall score was 6.5, highest scores related to formal aspects of the calls (frequency, duration, information received, symptoms management and resolution of doubts). The social dimension of the bio-psycho-social approach was linked to explanations of concrete actions or omissions at the level of the socio-organisational management of the situation.
Transferability	▪ Periodical calls should be carried out. ▪ Data and reports collected by official institutions should be analysed to determine the prevalence of health professionals afflicted and plan the intervention, along with the staff that will help conduct it.

References and resources

García-Sierra R, et al. Evaluación de un circuito de apoyo a profesionales sanitarios confinados por COVID-19. Rev Saude Publica. 2021; 55:108. https://doi.org/10.11606/s1518-8787.2021055003735[180].

Example 18

Communication network between senior leadership and junior doctors in response to the COVID-19 pandemic

General information			
Country	United Kingdom.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	Junior and senior physicians.
Initiator/organisations involved			
Imperial College Healthcare NHS Trust, North West London Integrated Care System.			
Type of Institution	Healthcare trust.	**Size**	1,400 beds, 15,000 workers (1,200 junior physicians).

Description of the intervention	
Scope	Collective.
Type of intervention	Organisational/Digital resources.
Aims	To develop a network using digital technologies to improve communication from leadership to the junior body (vertical) and peer to peer (horizontal).
Number of participants	780 members of the WhatsApp groups.
Characteristics of participants	Not mentioned.
Duration	4 months (March 2020 to June 2020).
What was done and how	▪ Committee to facilitate the Imperial COVID Communications Network (ICON). A senior respiratory and infectious diseases specialist approved guideline-related messages to be disseminated. ▪ Vertical communication: junior doctors used a Google Form survey to submit their concerns anonymously. The committee collated these issues and presented them to senior managers and clinicians to gather weekly formal responses. WhatsApp groups were also useful. ▪ Horizontal communication: representatives across sites, specialties and grades were identified as peer links to the ICON committee.
Facilitators	▪ Use of existing digital technologies. ▪ A committee of volunteer representatives from different sites, specialties and grades was responsible for setting up and maintaining the WhatsApp groups and disseminating responses to the queries.
What was achieved (Evaluation)	▪ 197 concerns were received (for example, patient management, training, welfare, communications, safety, rota and redeployment.). ▪ Post-intervention survey (n=28): 83.4% agreed about Google Form; 88.9% ICON weekly forums; 77.8% WhatsApp group; 94.4% helpful in receiving updates on upcoming events; 88.9%

	agreed ICON improved collaboration between junior doctors and senior leadership.
Transferability	▪ Try to take advantage of existing resources and/or technology. ▪ Allow the participants to express their concerns anonymously. ▪ A structured process to collate participants' concerns and present them to the senior leadership is required.

References and resources

Sivananthan A, et al. Grass-roots junior doctor communication network in response to the COVID-19 pandemic: a service evaluation. BMJ Open Qual. 2021;10(2) https://doi.org/10.1136/bmjoq-2020-001247[181].

Example 19

National leadership support service for nurses/midwives during the COVID-19 crisis

General information			
Country	United Kingdom.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	Nurse and midwife leaders.
Initiator/organisations involved			
The Florence Nightingale Foundation, charity to support leadership of nurses and midwives.			
Type of Institution	Charity organisation.	**Size**	77 senior nurses of health care organisations, 5 higher education institutions, 1 Integrated Care System, 3 individuals.

Description of the intervention	
Scope	Collective.
Type of intervention	Organisational/Leadership engagement.
Aims	To establish a national leadership support service for nurses and midwives at all levels.
Number of participants	1,374 attendees.
Characteristics of participants	Number of females/males: 42 females, 8 males. 56 nurses, 6 midwives, 2 allied professionals.
Duration	6 months.
What was done and how	Skilled facilitators of healthcare leadership development consultants and senior healthcare leaders joined in weekly meetings, with the structure, process and guidance for sessions being devised collaboratively to a continuous improvement process. They could choose sessions they felt comfortable running (for example, a male facilitator running a session of all-male attendees). Debriefing sessions were provided to support their wellbeing.
Facilitators	▪ Intervention facilitators had postgraduate coaching qualification. ▪ Online meetings to develop plans for how the service would run. ▪ A video describing the service was disseminated to share the themes of the sessions and influence continuous investment.
What was achieved (Evaluation)	▪ Engagement: 37 organisations and 1,374 individuals attended; 332 sessions held. Post-service questionnaires were used to gather demographic data and feedback about perceived impact on leadership. ▪ Confidence in leadership skills increased after attending the service; 68.8% of those who completed post-attendance questionnaires (n= 64) reported having learnt new leadership skills and a motivation to facilitate co-consulting sessions for their teams. ▪ The service was positively appraised, with reports of influence on leadership, and improved confidence after attending.
Transferability	▪ An advertisement and diffusion campaign should be carried out to reach the maximum of interested individuals. ▪ Consider that people delivering the intervention may need a medium for debriefing to ensure their wellbeing.

References and resources

Bond C, et al. Development of Nightingale Frontline: a leadership support service for nurses and midwives during the COVID-19 crisis. BMJ Lead. 2022; 6(4). https://doi.org/10.1136/leader-2021-000502 [182].

Example 20

Peer-leadership to redesign physicians' work during the COVID-19 pandemic

General information			
Country	Canada.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	Physicians.
Initiator/organisations involved			
Calgary Zone Department of Medicine (University of Calgary's Cumming School of Medicine).			
Type of Institution	Public health authority.	**Size**	430 workers.

Description of the intervention	
Scope	Collective.
Type of intervention	Organisational/Leadership engagement.
Aims	To develop a peer-professional leadership multifaceted workforce plan for physicians amid the COVID-19 pandemic.
Number of participants	1,446 physicians.
Characteristics of participants	Not mentioned.
Duration	3 months (March 2020 to May 2020) and a re-escalation in October 2020.
What was done and how	Core group with 4 physician coheads and 30 peers. 6 iterative actions: recognising the pandemic threat, committing to action, forming and organising, readying for operation, developing support processes, and designing functions and structure. ▪ Cross-specialisation structure for the management of COVID-19 patients. ▪ Standardised clinical care algorithm for efficient patient management. ▪ Hybrid documentation model that supplanted written clinical notes with a summative electronic discharge summary, with standardised COVID-19 electronic medical record (EMR) templates. ▪ Three personal protective equipment (PPE) courses with advanced technologies. ▪ List of physician logistic supports at each hospital.
Facilitators	▪ Volunteer physicians that worked to develop the model. ▪ Organisational support from the directive heads. ▪ Existing and emerging evidence was used to develop the intervention.
What was achieved (Evaluation)	▪ Engagement: Communications over 2,500 physicians, 1,446 volunteering to provide care on COVID-19 units. Of these, 234 signed up for hospital shifts, and 227 received in-person PPE simulation training. 93 were deployed on COVID-19 units at 4 large acute care hospitals.

Transferability	▪ Leverage existing systems and structures where possible. ▪ Constant communication with medical colleagues and frontline staff is needed to shape the intervention to suit their needs. ▪ Considering both existing and emerging evidence, and experience of directly involved staff to develop the intervention. ▪ Provision of some kind of recognition/compensation.

References and resources

Woiceshyn J, et al. We need to work differently in a crisis: peer-professional leadership to redesign physicians' work. BMJ Lead. 2022;6(2):98–103.

Pendharkar SR, et al. Description of a multi-faceted COVID-19 pandemic physician workforce plan at a multi-site academic health system. J Gen Intern Med. 2021;36(5):1310–8. https://doi.org/10.1007/s11606-020-06543-1 [183].

Example 21

Proactive mental health to support frontline workers during the COVID-19 pandemic

General information			
Country	United States of America.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	Frontline staff in COVID units.
Initiator/organisations involved			
Mount Sinai health system, New York city, 8 hospitals.			
Type of Institution	Healthcare network.	**Size**	3,000 beds, 42,000 workers.

Description of the intervention	
Scope	Mixed.
Type of intervention	Organisational/Leadership engagement. Cognitive behavioural/Counselling.
Aims	To create substantial and proactive intervention services aimed at frontline workers, based on the concept that emotional health is as important as physical protective equipment.
Number of participants	77 contacts for the MHCRT and 973 contacts for the MHL (see below)
Target groups	Staff in direct frontline care activities in COVID units, ICU's and emergency services
Duration	3 months (April 2021 to June 2021).
What was done and how	Two acute interventions to address employee's needs: 1. Mental Health Crisis Response Team (MHCRT): 24/7 crisis hotlines in 6 district-based hospitals available for employees to call for any urgent emotional support, both individual and for groups from clinical units that experienced collectively acute crises 2. Mental Health Liaison (MHL): to provide preventive support, by psychiatrists, psychologists, social workers and mental health counsellors.
Facilitators	▪ Organisational collaboration between different departments. ▪ Mental health professionals volunteer to help carry out interventions. ▪ Weekly supervision for the volunteers: debriefs and problem-solving. ▪ Engagement with unit leaders to ensure staff received adequate support.
What was achieved (Evaluation)	▪ MHCRT received a total of 77 calls from healthcare frontline professionals. ▪ MHL made 1,090 contacts (973 individual, 117 groups). ▪ Both led 38 referrals for staff members to outpatient mental health care.
Transferability	▪ Follow up with members of the staff that reach out for support. ▪ Engage with the unit's leaders to ensure staff receive adequate support. ▪ To adapt the interventions according to the environment conditions (changing video calls to in-person support). ▪ Use of different media to contact staff: phone calls, emails, and so on. ▪ The published article on the intervention offers recommendations for how this multi-dimensional model may be replicated in other settings.

References and resources

Gray M, et al. A ‘Mental Health PPE’ model of proactive mental health support for frontline health care workers during the COVID-19 pandemic. Psychiatry Res. 2021;299:113878. https://doi.org/10.1016/j.psychres.2021.113878

Example 22

Lessons and mental health initiatives to support healthcare workers during the COVID-19 pandemic

General information			
Country	United States of America.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	Healthcare workers.
Initiator/organisations involved			
Stony Brook University Hospital, in Long Island region.			
Type of Institution	University Hospital.	**Size**	624 beds, 7,504 workers (1,252 physicians).

Description of the intervention	
Scope	Mixed.
Type of intervention	Organisational/Organisational measures. Physical and mental relaxation/Resting hub, mindfulness. Cognitive behavioural/Peer to peer support, crisis hotline.
Aims	To take care of the mental health needs of the hospital employees by providing them with holistic support.
Number of participants	Not mentioned.
Participant characteristics	Not mentioned.
Duration	Not mentioned.
What was done and how	▪ Posters with wellness tips or strategies for protecting mental health. ▪ Transformation of a paediatric unit into a resting area opened 24/7 to all hospital employees that provided a place to rest, shower, snacks, and so on. ▪ Psychiatric nurses offered in-person support, meditations and support flyers. ▪ Online platform for delivering wellness strategies and mental health resources. ▪ Employee Assistance Programme provided additional support. ▪ Spiritual well-being hotline by the hospital chaplains (support and concerns).
Facilitators	▪ Prior to COVID-19, a faculty and staff Care Team to provide support. ▪ Hospital had integrated a Disaster Mental Health Team. ▪ Collaboration with IT and communication teams to promote initiatives. ▪ Donations from the community.
What was achieved (Evaluation)	▪ The hub received 10,000 visits from healthcare workers of the hospital. ▪ Feedback from employees as were interviewed by local reporters: mostly positive experiences with offered support, improved sense of well-being.

Transferability	▪ Plan in advance by having support teams or assistance programmes for staff. ▪ Collaborative interdisciplinary effort to correctly plan, develop and implement interventions to heal healthcare workers. ▪ Engage all available support resources and prioritise basic needs. ▪ Use different channels of communication to inform staff of available resources.

References and resources

Gonzalez A, et al. Supporting health care workers during the COVID-19 pandemic: Mental health support initiatives and lessons learned from an academic medical center. Psychol Trauma. 2020;12(S1):S168–70. https://doi.org/10.1037/tra0000893

Example 23

Institutional supportive response for healthcare workers in the context of COVID-19

General information			
Country	United States of America.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	Healthcare workers.
Initiator/organisations involved			
Yale University and Yale New Haven Health System.			
Type of Institution	Private university/Non-profit health system.	**Size**	29,000 workers (7,500 physicians).

Description of the intervention	
Scope	Mixed.
Type of intervention	Organisational. Physical and mental relaxation/mindfulness. Cognitive behavioural/crisis hotlines, psychoeducation.
Aims	To integrate a united and coherent wide-campus support system for healthcare workers with different levels of intervention.
Number of participants	8,299 healthcare professionals.
Characteristics of participants	Number of females/males: 6,549 females, 1,603 males. Number by occupation: 710 physicians, 7,544 non-physician staff.
Duration	4 months.
What was done and how	Multiple programmes integrated into a well-coordinated system, 3 targets: ▪ Community: Stress/resilience town halls to provide staff with psychoeducation and to learn resilience building strategies 'Care for caregivers'. ▪ Team: Unit/department halls, buddy system and peer support, palliative care huddles, psychological and social work consultation, leadership initiatives. ▪ Individual: Employee assistance programmes, crisis hotlines, web-based resources, wellness check rounds, quiet rooms, general assistance measures. 'Care for the Caregivers' website to improve use of services.
Facilitators	▪ Collaboration between leaders of different departments. ▪ Already existing interventions. Common website with all provided resources. ▪ Volunteers from the Psychology department.
What was achieved (Evaluation)	▪ Web-based version of validated questionnaires to evaluate the impact. ▪ Engagement: 69 general sessions with 739 attendees; 41 dedicated ones with 2,034 attendees; 16 weekly mindfulness sessions with 640 attendees; 1 to 4 sessions per person of individual brief interventions with 70 web contacts.
Transferability	▪ Investigate existing interventions or programmes to be integrated in a system.

- Avoid debriefing strategies that might result in maladaptive stress appraisals.
- Tailor intervention to specific communities within the staff or departments.
- Integrate strategies to reduce stigma associated with help-seeking.

References and resources

Krystal JH, et al. Mobilizing an institutional supportive response for healthcare workers and other staff in the context of COVID-19: The Yale experience. Gen Hosp Psychiatry. 2021; 68:12–8. https://doi.org/10.1016/j.genhosppsych.2020.11.005 . PMID: 33254081[184].

Example 24

Well-being hub to help hospital staff debrief and relax amid the COVID-19 pandemic

General information			
Country	United Kingdom.	**Available language**	English.
Sector	Healthcare (NACE Q 86).	**Target groups**	Healthcare workers.

Initiator/organisations involved			
Medway Maritime Hospital: public benefit corporation operated by the NHS Foundation Trust.			
Type of Institution	General hospital.	**Size**	560 beds, 4,000 workers.

Description of the intervention	
Scope	Mixed.
Type of intervention	Physical and mental relaxation/Relaxation hub. Organisational/Organisational communication.
Aims	To set up a safe space for staff to enable and encourage mindfulness and psychological resilience through a calm and serene environment.
Number of participants	93 staff members over 4 weeks since implementation.
Characteristics of participants	Not mentioned.
Duration	Total duration of the initiative not mentioned.
What was done and how	1. Space outside the hospital with bean bags, soft furnishings, large green plants and floor lamps; access to activities (board games, mindfulness, self-guided meditation, books), open 24 hours a day and accessed with previous identification. Hygiene standards. Previous staff survey on hub opinions and requirements. 2. nterviews with members of the trust executive team via staff social media engagement on social media and YouTube channel to allow maximum reach. 3. Contributions from local community members and staff: handmade colourful paintings, volunteers to lead yoga and mindfulness sessions.
Facilitators	▪ A survey to the staff to develop the hub based on their opinions; an ample, quiet and well illuminated space, comfortable furniture, activities to ensure physical and mental relaxation. ▪ Donations from the community: material resources and volunteering.
What was achieved (Evaluation)	Qualitative: feedback from 32 people received during the first 4 weeks, with a scale of emoji stickers to determine participant's mood before and after visiting the hub. Results showed an increasing number of people felt their mood improved after using the hub. 40.6% of attendees reported mood problems prior to visiting this hub. After the visit, dissatisfaction decreased to 3.0%. Whiteboard to gauge the mood of attendees anonymously, with mainly positive comments.
Transferability	▪ A space big enough to guarantee safe access to staff members and/or social distancing if mandatory, is required.

- A medium to know the opinions and concerns of the staff, to develop the space according to their needs.

References and resources

Saqib A, Rampal T. Quality improvement report: setting up a staff well-being hub through continuous engagement. BMJ Open Quality 2020; 9(3):e001008. https://doi.org/10.1136/bmjoq-2020-001008 PMID: 32826279; PMCID: PMC7445343[185].

Example 25

Hub and therapy dog to create a safe peer support space during the pandemic

General information			
Country	United Kingdom.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	Healthcare staff and nursing students from a hospital trust.
Initiator/organisations involved			
East Lancashire Hospital Trust: is an integrated health care organisation.			
Type of Institution	Teaching trust.	**Size**	1,041 beds, 10,000 workers.

Description of the intervention	
Scope	Mixed.
Type of interventions	Physical and mental relaxation/Relaxation hub. Peer support.
Aim	To set up a safe space to allow staff to share their experiences, promote their mental health and wellbeing amid the pandemic.
Number of participants	230 nurses and other staff members.
Characteristics of participants	Not mentioned.
Duration	Not mentioned.
What was done and how	▪ 'Listening lounges' were created by using donations from furniture retailers; 24 hours a day; staff discussed their personal experiences in an open, relaxed, and honest atmosphere; booked sessions by psychologists. ▪ Expert in charge of leading the participants in the discussion. ▪ Staff assisted voluntarily and could choose not to speak, offered further support: one-to-one sessions or referral to occupational health services.
Facilitators	▪ A quiet, safe space in which staff could reunite and talk privately. ▪ A specialised counsellor who would conduct the sessions. ▪ A trained therapy dog. ▪ Furniture donations from retailers to furnish the lounge.
What was achieved (Evaluation)	▪ Qualitative: feedback from users, comments mostly positive, safe space for them to speak and freely express without feeling judged. Speaking out helped them process and accept their feelings and enhanced being part of a team. ▪ Sessions highlighted trauma experienced by nurses and main causes: dealing with patients' deaths and communication to families; their own isolation.
Transferability	▪ Involve business from within the community to offer material resources. ▪ A quiet, safe and private space needed to ensure participants can speak freely. ▪ Certified experts should conduct the peer support sessions. ▪ Allow participants to choose if they want to speak or not.

References and resources

England NHS. Listening lounges and conversations with Jasper [Internet]. NHS.uk. Available from: https://www.england.nhs.uk/nursingmidwifery/shared-governance-and-collective-leadership/nursing-covid-19-catalogue-of-change/listening-lounges-and-conversations-with-jasper/ [186]. Contact for any further detail on this case study: england.1professionalvoice@nhs.net

Also, see: https://www.youtube.com/watch?v=mJpKz6eCfZ4

Example 26

Reiki programme for frontline healthcare workers' during the COVID-19 Pandemic

General information			
Country	United Kingdom.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	Any frontline NHS worker.
Initiator/organisations involved			
National Health System: the publicly funded healthcare system of the United Kingdom.			
Type of Institution	Public Health System.	**Size**	60,000-74,000 physicians, 170,000-190,000 nurses, 71,000-76,000 other allied professionals.

Description of the intervention	
Scope	Individual.
Type of intervention	Physical and mental relaxation/Reiki therapy.
Aims	To analyse the effectiveness of a reiki-based intervention in improving COVID-19 related health symptoms on frontline healthcare workers.
Number of participants	40 frontline healthcare workers.
Characteristics of participants	Number of females/males: 39 females, 1 male. Number by occupation: 14 physicians, 15 nurses, 11 allied professionals.
Duration	4 days.
What was done and how	▪ Reiki practitioners, previous information to facilitate connection. ▪ Online booking system, outside working hours to ensure comfort. ▪ Reiki for 20 minutes for 4 consecutive days, text and YouTube video instructions: sit or lie down quietly while the team sent them Reiki, in a quiet place; breathe slowly and relax. No communication with practitioner before, during or after the session.
Facilitators	▪ Low-cost intervention, minimal risk, administered remotely. ▪ Trained Reiki practitioners. ▪ The intervention was a pre-existing programme for NHS workers.
What was achieved (Evaluation)	▪ Quantitative: pre-post-intervention, assessed symptoms related to the pandemic: stress, anxiety, pain, wellbeing and sleep quality, with overall decrease, with 25% to 50% 'a little better' and 13% to 20% 'much better'. ▪ Qualitative (n=20): acceptability and satisfaction, very positive. ▪ No adverse events reported and no safety concerns.
Transferability	▪ Already established interventions adapted to health emergency context. ▪ Recommended at home; offer option at workplace with resources to ensure appropriate development.

References and resources

Dyer NL, et al. Evaluation of a distance Reiki program for frontline healthcare workers' health-related quality of life during the COVID-19 pandemic. Global Advances in Integrative Medicine and Health. 2023;12. https://doi.org/10.1177/27536130231187368 PMID: 37614464.

Example 27

Online emotional support for emotional trauma of COVID-19 in care home staff

General information			
Country	United Kingdom.	**Available language**	English.
Sector covered	Social care (NACE Q 88).	**Target groups**	Staff from 3 care homes for elderly people.
Initiator/organisations involved			
Lothian Care Home Innovation Partnership, to update care home managers on a wider vision for a teaching/research-based care home centre for the Lothian region and South East Scotland.			
Type of Institution	Care homes partnership.	**Size**	8 care homes from 6 care home organisations.

Description of the intervention	
Scope	Individual.
Type of intervention	Cognitive behavioural/counselling.
Aims	To provide online emotional support and practice-based learning on death or dying and end-of-life care during the pandemic.
Number of participants	34 home care staff.
Characteristics of participants	Care assistants, senior care assistant, registered nurses and activity providers (numbers per occupation not mentioned).
Duration	4 months (May to August 2020).
What was done and how	OSCaRS (Online Supportive Conversations and Reflection Sessions) 45-minute sessions in 3 care homes, by 2 academic nurses specialised in palliative care. Structured around an adapted version of the after-death reflective tool to accommodate excess deaths occurring in the pandemic. Sessions began with introductions followed by a relaxation exercise.
Facilitators	▪ Support and engagement of management from care homes. ▪ Palliative care professionals to carry out the intervention ▪ Intervention available to the staff within working hours. ▪ Staff shared experiences/knowledge; closeness aided team cohesion.
What was achieved (Evaluation)	▪ Thirty-four professionals attended one or more OSCaRS. ▪ Qualitative: interviews with 4 participants, 2 care home managers and session facilitators; an online pre and post survey distributed to all staff: 1) Staff appreciated the sessions facilitated by external practitioners with an understanding of care homes and expertise in palliative or end-of-life care; 2) OSCaRS offered a safe space to talk about experiences on death and dying of residents, they were actively listened to, their feelings acknowledged and understood by their peers; 3) The opportunity to attend OSCaRS during work hours, with management support, was valued. ▪ Three years after this intervention was conducted, the local NHS provider appointed an OSCaRS facilitator for one-year to continue the work, with a focus on support for current facilitators, and recruitment, education and development of new facilitators.

Transferability	▪ Timing of sessions should accommodate staff workflow to allow access to the intervention during work hours. ▪ Enough devices with cameras should be available to aid participation and social distancing across the care home.

References and resources

Johnston, L. Online Supportive Conversations and Reflection Sessions (OSCaRS): A Feasibility Study With care home staff during the pandemic. Edinburgh: CSO. 2021.

Johnston, L., Hockley, J., Watson, J., & Shenkin, S. D. (2024). A Reflection On: Online Supportive Conversations and Reflection Sessions (OSCaRS): A Feasibility Pilot with Care Home Staff during the Pandemic. *International Journal of Practice-based Learning in Health and Social Care, 11(2).* *https://publications.coventry.ac.uk/index.php/pblh/article/view/1046*

Example 28

Digital learning to mitigate psychological impact of COVID-19 on healthcare workers

General information			
Country	United Kingdom.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	Healthcare workers, academics and students.

Initiator/organisations involved

University of Nottingham:

Public research university with campus across the United Kingdom, Malaysia and China.

Type of Institution	Public University.	**Size**	7,800 workers.

Description of the intervention

Scope	Individual.
Type of intervention	Cognitive behavioural/psychoeducation.
Aims	To create a digital learning package to assist healthcare workers in their psychological wellbeing in response to COVID-19 pandemic.
Number of participants	55 healthcare professionals.
Characteristics of participants	Not mentioned.
Duration	1 week (until evaluation).
What was done and how	Process to develop the package (3 weeks): ▪ Step 1: Public involvement activities, stakeholder consultation groups (January 2020 and March 2020), group of experts with strategic roles in COVID-19 Employee Health and Wellbeing planning. ▪ Step 2: Content and technical development with iterative peer review by a panel of 10 healthcare workers to provide feedback on the package's characteristics and content. ▪ Step 3: Delivery and evaluation. Package content, 7 sections: Psychological Impacts, Psychologically Supportive Teams, Communication, Social support, Self-care, Manage Emotions, Further Resources; with links to relevant areas of the learning tool. Delivery via emails, professional networks and social media.
Facilitators	▪ Experienced psychologist in MBSR, available before the sessions. ▪ A quiet, heated classroom.
What was achieved (Evaluation)	▪ Accessed 17,633 times; >50,000 social media exposures (first 7 days). ▪ Evaluation form with 20 questions on fidelity and implementation qualities. All predefined success criteria were met. Within 7 days of package release, 82% of healthcare participants reported its use from work or at home; 100% anticipated use in the future.
Transferability	▪ Content should be useful and appropriate to the needs of healthcare workers; updates according to how information/support evolve.

	▪ Ideally, prior training should not be required to use the intervention.

References and resources

Blake H, et al. Mitigating the psychological impact of COVID-19 on healthcare workers: A digital learning package. Int J Environ Res Public Health. 2020;17(9):2997. https://doi.org/10.3390/ijerph17092997 [187]

Example 29

'Dear Doctor':
A text message-based intervention to reduce burnout in trainee anaesthetists

General information			
Country	United Kingdom.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Focus groups**	Anaesthesiology trainees.
Initiator/organisations involved			
Royal College of Anaesthetists (RCoA), Association of Anaesthetists, United Kingdom and Ireland.			
Type of Institution	National Institution.	**Size**	Not applicable.

Description of the intervention	
Scope	Individual.
Type of intervention	Cognitive behavioural/Digital resources.
Aim	To reduce burnout specifically and increase well-being in British trainee anaesthetists by using a text message intervention.
Number of participants	279 trainee anaesthetists (139 intervention group versus 140 control group).
Characteristics of participants	Not mentioned.
Duration	10 months (October 2019 to July 2020, end of the training year for most participants).
What was done and how	▪ A two-group non-blinded randomised controlled trial was conducted ▪ The intervention content was informed by factors associated with burnout in the existing literature and by factors identified by UK trainee anaesthetists in a preceding interview study. Members of the public contributed by sharing positive experiences of anaesthetic care. ▪ The intervention group (139 trainees) received 22 fortnightly text messages over approximately 10 months Messages drew on 11 evidence-based themes grouped into 6 categories: gratitude; self-efficacy; connection to purpose; social support; support resources; and planning prompts.
Facilitators	▪ A study before the intervention identifying factors of burnout. ▪ Consideration of the target group and the public personal experiences to develop the intervention's content.
What was achieved	▪ Quantitative (n=153; 74 intervention/79 control groups). No differences in burnout, wellbeing, meaning, sick days, or consideration of career break. However, a post hoc analysis found that the intervention was associated with reduced burnout in participants that reported personal or work-related difficulties during the trial period and in participants reporting that the COVID-19 pandemic had a big negative impact on their wellbeing. ▪ Qualitative: participants provided free-text feedback answers. 68% said they regularly acted on the advice and 66% reported they would recommend the intervention to future trainees. From a total of 19 free-text comments, 13 were positive towards the intervention.

Transferability	▪ Consider the existing literature and experiences of the professionals/trainees to adapt the intervention to their needs. ▪ Try to involve the public to participate in the intervention.

References and resources

Brazier A, et al. 'Dear Doctor': a randomised controlled trial of a text message intervention to reduce burnout in trainee anaesthetists. Anaesthesia. 2022;77(4):405–15. https://doi.org/10.1111/anae.15643 [188].

Example 30

Video intervention to increase mental health treatment-seeking by healthcare workers

General information			
Country	United States of America.	**Available language**	English.
Sector covered	Healthcare (NACE Q 86).	**Target groups**	US-resident health, social care workers, and other professionals within healthcare.

Initiator/organisations involved			
New York State Psychiatric Institute; and Department of Psychiatry, Columbia University Vagelos College of Physicians and Surgeons, New York.			
Type of Institution	Research and teaching Institutions.	**Size**	Not applicable.

Initiator/organisations involved	
Scope	Individual.
Type of intervention	Cognitive behavioural/Health promotion.
Aims	To implement a brief social contact-based video intervention to increase treatment-seeking intentions among healthcare workers.
Number of participants	350 Healthcare workers.
Characteristics of participants	Number of males/females: 90 males, 260 females. 52 doctors, 237 nurses, 30 emergency technicians, 12 physiotherapists, 8 pharmacists, 6 hospital administrators, 6 social workers and other therapists
Duration	1 month.
What was done and how	Participants were recruited by crowdsourcing. Three groups: ▪ Group (a): brief video-based intervention day 1, booster video day 14. ▪ Group (b) received the video on day 1 only. ▪ Group (c) a no-intervention. A 3-minute video (initial and booster) on interview of an intensive care female nurse describing difficulty coping with stress, anxiety and depression, and how psychotherapy and social support helped her to cope with COVID-19 stressors. Intention to humanise the suffering via social contact.
Facilitators	Short videos focused on the topic.
What was achieved (Evaluation)	Treatment-seeking intentions were measured using the Attitudes Towards Seeking Professional Psychological Help Scale (ATSPPH-SF), with assessments pre-post-intervention, and follow-ups. Groups (a) and (b) showed a significant increase in treatment-seeking intentions. Post-intervention to 14-day follow-up: increased treatment-seeking intentions only for group (a); 30-day follow-up: increased treatment-seeking intentions.
Transferability	▪ Consider the main target group when designing the videos and to facilitate access, the videos could be delivered via an app. ▪ Long-term follow-ups, and feedback on its content.

References and resources

Amsalem D, et al. Video intervention to increase treatment-seeking by healthcare workers during the COVID-19 pandemic: randomised controlled trial. Br J Psychiatry. 2022;220(1):14-20. https://doi.org/10.1192/bjp.2021.54 . PMID: 35045900[189].

3.2.5 Recommendations

As a result of detailed searches and screening of identified sources, 109 recommendations have been included addressing the psychological well-being and mental health in the HeSCare sector. They were classified into three main groups according to the focus for which they were intended: organisational (62 recommendations), individual (24 recommendations) or health outcome specific (23 recommendations). Based on an in-depth analysis of their content and target, subcategories were further established in this report.

Organisational recommendations included advice grouped under general support measures, management of resources, communication, shifts and workload, leadership, organisational peer support psychological support and stress management, team self-care and well-being measures, economic support and job stability, preparation for future health crises, evaluation of interventions, and community support.

Individual recommendations were classified into peer support, psychological support and stress management, and self-care and wellbeing measures.

Finally, recommendations for specific mental health outcomes addressed burnout, PTSD, isolation and quarantine, social stigma and moral injury.

3.2.6 List of recommendations by scope

Details of specific recommendations organised per subcategory in each main area are shown in Table 5, Table 6 and Table 7.

Table 5: Organisational recommendations

Subcategory	Recommendations
General support	▪ While an individual approach can be beneficial, interventions at organisational level are preferable. ▪ Invest in technology for service delivery, everyday work tasks and communication, so that staff can work from different locations, including home. ▪ Protocols should be up to date, with a clear action plan, effective communication strategies, and if possible, with staff involvement when preparing them. ▪ Improve existing support structures, if available. ▪ Inform and educate healthcare professionals about the pandemic or emergency, agent, method of transmission, symptoms and protective measures with up-to-date information ▪ Protect staff from expected risks by providing physical (personal protective equipment) and psychological or emotional support resources ▪ Information and updates should be provided frequently, if not daily, from consistent faces and reliable sources to offer reassurance. ▪ Use valid evidence to prepare practices, tools and resources to support staff in different areas (physical and psychological) and try to anticipate their needs. ▪ Be aware of the high-risk groups within staff (migrants, single parents, recently hired, female workers, young and elderly staff, professionals with previous health/mental health issues). ▪ Pay attention to potential ethical dilemmas in healthcare and the intensity of care.
Resource management	▪ Try to create a resilient supply chain to safeguard the distribution of equipment, supplies and medications during the outbreak, and especially to frontline staff.
Communication	▪ Provide opportunities for bidirectional communication to allow staff to express their concerns, and then listen and act accordingly. ▪ Establish clear communication of policies related to sick leave, pay equity and workload; equity must be considered, particularly in redeployment.
Shifts and workload	▪ Limit work at the frontline to between 6 and 8 weeks and alternate with non-frontline shifts. ▪ Limit shifts to a maximum of 12 hours with light tasks, or to between 8 and 10 hours for intense tasks; for evening and night shifts, 8 hours are recommended. ▪ Days off and vacations should also be planned during an outbreak. ▪ A good care provider–patient ratio is crucial so that the workload does not exceed staff capacity to manage it, to ensure good quality care and to avoid burnout.

	▪ Ensure that workplace risk assessment includes psychosocial risks and involve workers and their representatives in this process
Leadership	▪ The leadership model should embody visibility, availability, being open, caring for oneself and others, continuous adaptability and flexibility, and careful planning. ▪ Embody the values of compassion, empathy, courage and authenticity to create conditions for positive relations between you and your staff. ▪ Get training in crisis and disaster management, emotional intelligence, stress management, and conflict and information management; this will help your team. ▪ Offer comforting expressions, gestures of appreciation and professional acknowledgement to your staff. ▪ In urgent need, rapid decision-making and an agile response are vital. ▪ Create a work environment that supports the wellbeing of your staff so that they continue to provide high-quality care, and to mitigate the pandemic effects on them. ▪ Use multiple communication methods to keep in contact: listening, being present, team huddles, protocols, emails, Zoom, Schwartz Rounds, collaborative dialogue, and so on. ▪ Use and promote organisational support systems and services to reduce staff risk of psychological harm. ▪ Ensure teams have adequate preparation and practical support by creating learning spaces to promote innovation. ▪ Ensure availability and replacement of personal protective equipment; rehearse strategies for communicating with patients, their families and colleagues while wearing it. ▪ Whenever possible, maintain staff autonomy and give them permission to explore and safely rethink their work. ▪ Set clear and realistic goals that team members can achieve and be held accountable for. ▪ Provide standardised interventions but allow for tailoring to local context and needs. ▪ Encourage staff to speak up when something causes them distress. ▪ Tend to your own health and wellbeing; this also serves as an example for your staff.
Organisational peer support	▪ Provide both formal and informal one-to-one or group support within the workplace (buddy system), especially by mentoring between senior and junior staff members. ▪ A platform for healthcare professionals to share information, experiences and good practices and for communication among peers and with collaborating parties will promote a strong social network. It is also useful for individuals who may be reticent to speak to their managers or superiors. ▪ Make sure that there is always someone with whom workers can talk before, during and after their shift. ▪ Provide adequate support and supervision for peer-supporters, as they are vulnerable to being traumatised due to the nature of their support activities.

Psychological support and stress management	▪ Hospital administrators and managers must develop proactive strategies to destigmatise mental health needs for healthcare providers and to empower them to seek support by prioritising transparent communication and allowing them to freely express their concerns. ▪ Professionals and managers should be informed about the psychosocial risks of working in outbreak situations, and be trained on how to deal with isolation, stigmatisation, fatigue, stress and feelings of depression. ▪ During the peaks of pandemics, practical support may be more effective for stress and fatigue management, while psychological support may be more suitable during recovery phases, along with wellbeing initiatives to help with processing psychological trauma. ▪ Offer sufficient resources/capacity for a multidisciplinary psychosocial support team consisting of peer support, psychologists, spiritual counsellors, social professionals, occupational health and safety physicians. ▪ Create a safe area where professionals can catch their breath and/or get peer support, along with opportunities to stay in direct or indirect contact with family and friends. ▪ Provide clear, realistic information, frank briefings and reflection on the risks and challenges staff may face and repeat this subsequently at appropriate points such as the beginning or end of shifts. ▪ For frontline workers, getting help before distress escalates into a crisis is essential. ▪ Beware that long-term psychological follow-up may be necessary.
Team's selfcare and wellbeing measures	▪ Frequently monitor the physical and mental health status of professionals, especially during outbreaks. ▪ Emphasise healthy self-care coping mechanisms during the peaks of the pandemic. ▪ Allow staff to have time to perform meaningful activities within the work environment to increase their sense of wellbeing (for instance, exercise and meditation) and ideally, optimise the workplace to support appropriate rest and sleep periods; if possible, each department should have a separate room available for professionals to rest or sleep. ▪ Offer professionals, especially those at the frontline, sufficient and accessible nutritional food and drinks during every shift.
Economic support and job stability	▪ Staff from underused areas could be voluntarily shifted to these areas to perform key services to minimise layoffs and ensure adequate staffing in areas with a high workload. ▪ Material and financial reward systems put in place should be fair, realistic and clearly communicated to the staff. ▪ When implementing bonuses or salary increases, prioritise high risk groups such as frontline staff. ▪ In some cases, bonuses could be given to the staff families (for example, families and/or spouses of deceased workers due to the pandemic). However, implementation of bonuses/pay increases are not more important than psychological resources/interventions.

Preparation for future crisis	▪ Continuous communication and collaboration should be maintained, not only between health and care centres and hospitals, but also with universities, research centres and other institutions; also, networking with experts in different areas can make it possible to have up-to-date knowledge and develop and disseminate proved good practices/interventions. ▪ Do not wait until an emergency or crisis occurs to implement assistance programmes or support initiatives for workers. ▪ Preparation for the next health emergency begins now, and systems/resources should adapt to meet future needs. ▪ Ensure that workplace risk assessment also covers biological risks.
Evaluation of interventions	▪ Evaluation allows for practices and interventions to be adapted based on up-to-date information on their effectiveness and acceptability by the staff, can highlight the potential benefits and challenges of providing support for staff, and help achieve better preparedness for future emergencies. ▪ Staff support activities should be accurately recorded in a secure database to better understand which groups use the resources provided and which do not. ▪ Collect feedback from the staff, one-to-one and/or in groups, using brief feedback forms that will not place additional burdens on them, and combine quantitative and qualitative evaluations. Also, online feedback forms can reduce risk of infection. ▪ Actively engage safety representatives and workers in the design, implementation and later evaluation of interventions ▪ Collect feedback from support providers, as they can offer helpful information regarding the effectiveness of any initiatives, as well as to identify any additional wellbeing or training needs they may have.
Community support	▪ Ideally, support resources should reach beyond the clinical setting, reaching staff's homes/families and the community, with provision of services such as care for children, elderly people and animals, especially for frontline professionals. ▪ Recognise that a broad range of voluntary and community organisations can play an important role in the psychosocial response to major incidents and public health emergencies. ▪ Initiatives that include letters and/or video messages from patients and their families or the general population, expressing their gratitude or support to health and social care staff may help them to feel valued and acknowledged.

Source: authors' elaboration

Table 6: Individual recommendations

Subcategory	Recommendations
Peer support	▪ Pause during working hours to rest and unwind. If possible, have a 10-minute rest for every 2 working hours. ▪ Monitor peer needs regularly: you can also offer them basic resources like food and water. ▪ Find the right way to check in on someone without annoying them (that is, emailing or texting versus calling). ▪ Be approachable and authentic. ▪ Remind your peers about how they are safe here and now, and to focus on the present moment. ▪ When talking to colleagues, try to use words such as 'friend', 'partner' and/or 'team' to show engagement. ▪ Show understanding, validate concerns, provide positive feedback and avoid being judgemental. ▪ Provide information about coping strategies and/or redirect towards support resources. ▪ In an emergency situation or crisis that requires quick decision-making, mistakes may occur; avoid being impatient, judgemental and too critical.
Psychological support and stress management	▪ Remember to be kind to yourself, as being too self-critical can increase stress. ▪ Accept and recognise your feelings of vulnerability; do not ignore or avoid them. Try to act with them rather than against them when developing a strategy that can help you, both in and outside work. ▪ Accept that the possibility of becoming infected and infecting loved ones is real, and you may not be able to control it; however, you can focus on the use of skills and abilities to help you work efficiently, thus minimising the infection risk. ▪ When experiencing work overload, try to focus on completing one chore or activity at a time, so you will not feel overburdened. ▪ Inform and educate yourself about the potential risks you may be exposed to, both physical and psychological/emotional, as well as the preventive measures. ▪ If needed, do not hesitate to reach out for help by talking to your supervisor or manager or seek professional support. ▪ Make use of the resources/supports provided at your workplace. ▪ Remember that this is temporary and will pass.
Selfcare and wellbeing measures	▪ Maintain structure and routine outside working hours. ▪ Try to eat healthy and well-balanced meals, and exercise regularly. ▪ Prioritise good-quality sleep, rest and recovery. ▪ Identify and avoid negative coping mechanisms such as alcohol and drug consumption. ▪ Engage in activities you enjoy and/or that help you unwind (yoga, meditation and mindfulness). ▪ Limit exposure to social media and try to rely on news from trustworthy sources. ▪ Keep in regular contact with family and friends by phone calls or videocalls and let yourself talk about your feelings and share your experiences with others.

Source: authors' elaboration

Table 7: Recommendations focused on health outcomes

Subcategory	Recommendation
Burnout	▪ Aim to build a culture of trust so that staff feel they can talk about their stress without feeling stigmatised. ▪ A peer support programme is recommended so that struggling staff can access the help they may need. ▪ Consider that some staff members have demands at home besides the workplace, so whenever possible, put in place resources to support them, such as child and/or elderly care. ▪ Inform staff about healthy coping strategies to help them deal with workplace stress. ▪ Commit to making professionals feel valued, whether in times of crisis or otherwise.
Post-traumatic stress disorder	▪ Use official sources and/or literature to gather evidence on which groups of professionals are at higher risk of developing PTSD (nurses, female staff, intensive care workers and frontline staff, and parents with young children). ▪ A screening programme for acute stress, anxiety and depressive symptoms in staff is recommended. ▪ Try to have different kinds of psychological interventions to support staff, including one-on-one support and group-based interventions. Also, assure participants that their information will be confidential, as some of them may be concerned about stigmatisation. ▪ The timing of these interventions should be ideally in the immediate aftermath of the crisis and in the medium and long term, plus a follow-up. ▪ Be aware that not all professionals will feel comfortable speaking about their experiences; do not force the issue as this may increase their trauma. Other alternatives for support should be considered.
Isolation and quarantine	▪ Keep in contact via phone or video calls and inquire about staff's physical and mental wellbeing. ▪ Offer support resources that can be accessed online. ▪ When staff members must work from home, there are non-clinical activities they can carry out: investigate work incidents, conduct reviews, and offer online peer support. ▪ After redeployment of quarantined staff, a follow-up on their physical and mental state is necessary.
Social stigma	▪ Encourage workers to keep in touch with their loved ones, as some of them may feel the need to avoid their family, friends, or their community in general. ▪ Engage the community to recognise, support and honour professionals, especially those working in the frontline. ▪ Provide staff with enough protective personal equipment to minimise the risk of infection, thus reducing the fear of infecting their loved ones, along with self-stigmatisation.
Moral injury	▪ Try to create a work environment that fully supports workers at all levels (colleagues and managers) and allows them to work with a sense of integrity. ▪ Recognise that moral injury is not in itself a mental disorder, but a normal human response to morally challenging events.

- Focus on building moral resilience, which will help workers face stressful and uncertain situations, by engaging in practices such as mindfulness and breathing exercises.
- Inform staff in an honest and clear manner about the situations that they will probably face, acknowledge the challenging working conditions and that they may not be able to provide optimal care to every patient.
- Implement peer support, especially between junior and senior staff members.
- Make sure to closely support managers, as they may have to make most of the difficult decision-making.

Source: authors' elaboration

4 Discussion

4.1 Prevalence of adverse mental health outcomes in the EU

The available scientific evidence shows that the impact of the COVID-19 pandemic in terms of psychosocial risk exposures and mental health problems on HeSCare workers is worrying, and that actions and interventions are therefore needed to mitigate these adverse effects on workers' mental health and to improve wellbeing in the sector.

This is the first comprehensive systematic assessment of the burden of mental health outcomes in workers in the human health and social care activities sector in the EU as a result of the COVID-19 pandemic. The study sheds light on the high occurrence of a range of mental health problems experienced by the workforce as well as on the impact for specific subgroups of workers in the sector who may experience more psychosocial risk factors and who appear to suffer, indeed, higher prevalence of a range of mental health issues. These include professionals at the frontline, specific professional profiles such as nurses, residents, aides and EMTs, hospital-based workers, and younger professionals as well as female workers.

The estimates of mental health burden for EU-27 in this report are based on data from most countries in the EU (22 of 27). Still, there is no complete geographical representativeness, given the lack of evidence for five countries without prevalence studies conducted and reported that fulfilled the inclusion criteria. Moreover, the evidence available for some of the countries on some of the mental health outcomes studied was very limited. Additionally, limited information is available to allow for country-to-country comparisons. To do that, it may be necessary to conduct further in-depth analyses on a per country basis, considering the specific timeline of the pandemic waves in each country, the characteristics of the health system and the approach taken to face the pandemic.

More evidence is needed to better inform targeted approaches for prevention and management in specific groups of workers. For example, some professional profiles (pharmacists, physiotherapists, psychologists, laboratory technicians and non-clinical professionals at high risk of infection in a hospital environment, such as cleaning staff) are underrepresented, because most studies were conducted on doctors and nurses. This limitation also applies to some of the other subgroups explored. Only a fraction of the studies reported disaggregated data by sex or by age, and more evidence is needed in the social care sector and in out-of-hospital settings (nursing homes and general practice workers).

The systematic review has applied a sound methodology and strict eligibility criteria to include studies of moderate-to-high quality and to ensure population representativeness. Nevertheless, the circumstances in which the studies were conducted (for example, amid the pandemic, sometimes during lockdown) led to methodological shortcomings. Ahead of future pandemic events, it would be important to establish pragmatic but rigorous research practices that can result in more reliable knowledge.

Also, there is clinical and statistical heterogeneity in the results, due to variability in the populations surveyed, the mental health assessments (scales and thresholds used to define the presence of the mental health problem varied across studies), and the timing of the prevalence assessments, with measurements corresponding to the acute phase of the wave of infections in some studies, and to periods of declining COVID-19 infection in others, which may have varied across countries or regions.

A general limitation of prevalence systematic reviews relates to the lack of reliable pre-pandemic estimations that could serve as baseline values to compare the aggregated estimates from these results, and the impossibility of drawing a work-related causal attribution to COVID-19 for the observed findings.

This review has many strengths. It covers a broad clinical perspective, considering a wide spectrum of critical mental health problems, and it assesses the degree of severity for some of these conditions. It also offers a broad population perspective, providing prevalence estimates of the overall mental health burden in the EU and it stratifies estimates by country, professional profile, sex, age and type of worker (frontline or not). This will help governments and institutions design targeted occupational safety and health (OSH) policies to tackle the needs and risks of the health and social care workers derived from COVID-19, as well as the expected risks of the health and social care workers derived from COVID-19, and ensure proper provision for future pandemics.

The EU focus and the broad clinical perspective of this review ensure that the results are more relevant to the EU context than existing literature published earlier on the prevalence of mental health problems in healthcare personnel globally. These included fewer studies conducted in the EU, did not require included studies to have populational representativeness or mental health to be evaluated with clinical scales, and did not cover the broad spectrum of outcomes, professional profiles and subgroups considered in this project[190-196].

The results obtained in this systematic review will be helpful to inform research needs, highlighting the evidence gaps by mental health outcome, geographic area, and subgroup of workers in the sector. In-depth explorations at country level will allow for better understanding of sources of data heterogeneity, such as variability in the dates and intensity of pandemic waves across countries, health system characteristics or national policies established in response to the pandemic.

4.2 Identification of good practices / interventions and recommendations

This report shows that in a relatively short period, a reasonable number of good practices/interventions were carried out at workplace level in the sector, in response to the pandemic effects on health and social care workers' mental health. Similarly, a relevant number of published documents emerged with valuable recommendations for potential users of this report, endorsed by well-known authoritative institutions.

All this material was identified with in-depth searches in the grey and scientific literature, with direct contact to experts in the field, and complemented with a Delphi survey approach involving 14 members from 9 different EU/EFTA and non-EU countries, from various types of organisations (professionals, trade unions, employers, government, research institutions, and so on). Even though experts and organisations from many different countries were involved, full representativeness across Europe cannot be guaranteed, and some good interventions may have been omitted

This report aims to provide examples of real-life interventions that have demonstrated to be well accepted at the workplace and successful in improving mental health in the sector, together with accessible and organised information on recommendations and guidelines that can be of use in future health crises to those responsible for the protection of health and social care workers as well as to the workers themselves. It also includes a selection of 30 detailed examples of good practices/interventions from various countries, implemented at individual and/or collective levels, with healthcare and social workers as participants and with some degree of evaluation (considering that the pandemic emergency was per se an important limitation to incorporating an evaluative approach in any initiative). Nonetheless, some pre-post assessments with a control group were identified and are included. Despite the few interventions identified addressing social workers, some interesting examples of good practices have been included.

Regarding the compilation of recommendations issued by many authoritative sources on the management and prevention of psychosocial risks and mental health impacts in the sector, most of those identified involve organisational preventive strategies intended to protect workers as a 'collective', in line with requirements in OSH legislation and following the hierarchy of controls principle. However, the actual interventions identified that were carried out during the COVID-19 pandemic and described in the scientific and grey literature mainly focus on individual actions. This is probably because interventions with an individual approach are more accessible and readier to implement, a critical factor in an acute health crisis such as COVID-19. Focusing on the organisation requires more complex decision-making: however, if appropriately implemented, collective interventions are more effective, cover wider groups and may lead to longer-lasting benefits for the workforce.

Finally, recommendations focused on specific adverse mental health outcomes that also emerged in the results of the systematic review of prevalences, such as burnout and post-traumatic stress disorder were identified, as were others focusing on frontline health and social care workers.

Altogether, the high number of organisational recommendations identified with the literature searches strengthen the conclusion that collective approaches should be prioritised over individually focused ones, accompanied by regular workplace risk assessments covering psychosocial risks and considering

vulnerable groups of workers. This is not only in line with the rules set up in the legislation, but also more effective and brings longer-term benefits.

Interventions in the sector should be planned, rolled out and monitored with direct worker participation, as well as involving workers' representatives and social partners. Lessons-learned from the COVID-19 pandemic and the many interventions that were conducted, can help the sector improve in further designing strategies to prevent and manage work-related psychosocial risks and their adverse mental health consequences.

This compendium of available recommendations and examples of interventions should provide practical guidance to support workers, employers and other OSH professionals. It should also help policymakers and other decision makers seeking to reduce the burden of work-related psychosocial risks and mental health problems, to increase the wellbeing of these essential workers and enhance sector preparedness and resilience to pandemics and future health crises.

In conclusion, to attract and retain skilled workers in the sector, it is necessary to advance training and skills, improve working conditions, increase awareness of work-related psychosocial risk factors, destigmatise mental health problems and make health and social care jobs more attractive. An important solution to address these issues is social dialogue and collective bargaining.

5 Policy pointers for future action

Based on the results of this study, policy pointers for institutional action at European, national and sectoral levels are summarised below.

- Safeguarding the mental health of workers in the HeSCare sector should be a priority at EU level, to increase the quality of care and patient safety and the resilience of health services in the face of future outbreaks and public health emergencies, as well as to retain workers in this critical sector by improving their working conditions and wellbeing.
- Since the start of the COVID-19 pandemic, workers in the sector across the EU have suffered from a range of mental health adverse outcomes, including a high prevalence of moderate to severe forms of several of the conditions studied.
- Subgroups of workers in the sector at higher risk of suffering more mental health adverse effects have been identified, and these need appropriate assessment and management regarding psychosocial risk factors at work and determinants of mental ill health, particularly in the context of health outbreaks. These include frontline workers in direct contact with the virus, professional profiles such as medical residents, EMTs, laboratory staff, radiology staff, social and mental care professionals and administrative staff, and non-medical staff like cleaners in hospital settings, as well as women workers compared to men, in a highly female-dominated economic sector.
- Most of the evidence on the mental health impacts of COVID-19 stems from studies conducted in hospital-based settings. Future research support and actions are needed aimed at social care workers, including those in nursing and elderly homes, as well as those workers delivering home care, who may be suffering from specific or additional psychosocial stressors.
- The role of age in mediating work-related psychosocial risks and mental health outcomes in health and social care workers during the pandemic is not yet fully understood, and deserves further attention and study, also considering the ageing workforce in the EU. Both younger and older segments of the working population in the sector seem to experience increased risk for adverse mental health outcomes, but more studies are needed.
- Ahead of future epidemic events, it would be important to plan and establish pragmatic but rigorous research practices that can provide informative evidence, and yet be developed in adverse circumstances but still result in reliable knowledge.
- These findings strengthen the importance of implementing workplace risk assessments that include proper evaluation of psychosocial risks and biological risks, to enhance preparedness and epidemic response in the health and social care sector.
- Identified recommendations for actions targeting both organisational culture and individuals should be further disseminated. A publicly accessible repository describing in detail different types of best practices and effective interventions in the sector could be very useful for stakeholders, including employers or policy makers seeking to choose the most appropriate or feasible actions that can be readily applied or tailored to each context, region or country across the EU.
- Organisational interventions should be prioritised, and worker participation is key in their design, implementation and assessment.

6 Appendices

Appendix A — Glossary of terms

Acute stress — Feeling of emotional or physical tension, beginning shortly after an overwhelming traumatic event and lasting less than a month.

Anxiety — Mental health condition characterised by excessive feelings of nervousness, stress or persistent thoughts of fear.

Best practice — Procedure that is generally accepted as being correct or most effective.

Burnout — State of physical or emotional exhaustion that also involves a sense of reduced accomplishment and loss of personal identity.

Case study — A particular instance (real or not) used to illustrate a thesis or principle.

Certainty of evidence — Extent to which an estimate or synthesis result can be trusted to be close to the effect.

Clinical heterogeneity — Variability in the characteristics (e.g. methods, participants, measures, timing) of different studies being summarised in a systematic review.

CoCoPop framework — Acronym used to frame research questions on the prevalence of a condition, disease, problem or symptom in the fields of health and social sciences.

Condition —In the Joanna Briggs Institute (JBI) instrument for prevalence studies it refers to whether a study assessed the condition of interest with validated scales or clinical interview.

Coverage of sample — In the JBI instrument for prevalence studies refers to whether a study could analyse the identified sample with sufficient coverage for all or most subgroups of interest.

COVID-19 pandemic — Global pandemic declared on January 2020 by the World Health Organization, caused by the SARS-CoV-2 virus.

Depression — Mood disorder in which feelings of sadness, loss, anger, or frustration interfere with everyday life for two weeks or more.

Effort-reward imbalance — Lack of fairness in the reciprocity of efforts expended and rewards received at work.

Financial stress — Financial pressure due to financial uncertainty, loss of income, salary cuts, increased expenses, or need to support family members.

Forest plot — Graphical display of estimated results from several scientific studies addressing the same question, usually presented with the findings from the meta-analysis of these values.

Good practice — Real-world examples (case study) of a method or technique that has consistently shown a reduction of the potential to cause harm to workers and/or has improved the working conditions while effectively promoting health, safety and efficiency.

Insomnia/sleep disturbances — Sleep disorder that involves trouble falling asleep, staying asleep, and getting appropriate or good-quality sleep.

Low job control — Situation when workers have little control over how or when their job is done.

Meta-analysis — Statistical analysis of data from independent studies, with the aim of obtaining a pooled numerical estimate of an effect measure of interest, usually presented along confidence intervals**.**

Meta-analysis models — Statistical models to calculate pooled effect estimates from several studies and that consider the model parameters as random variables (random effects model) or fixed parameters (fixed effects model).

Moral injury — Psychological distress that results from actions, or the lack of them, which violate someone's moral or ethical code.

NACE — Statistical Classification of Economic Activities in the European Community

PRISMA — Preferred Reporting Items for Systematic Reviews and Meta-Analyses. Guidelines for the reporting of systematic reviews evaluating the effects of interventions.

PROSPERO — International database of prospectively registered systematic reviews in health and social care, welfare, public health, education, crime, justice, and international development, including a health-related outcome.

Psychological distress — State of emotional suffering characterised by symptoms of depression and anxiety.

Psychosocial risks — Factors that may affect workers' psychological, physical and social response to their work and workplace conditions.

Posttraumatic stress disorder — Mental health disorder that some people develop after they experience or see a traumatic event, and the feeling of stress persists after the trauma is over.

Reliability of assessment — In the JBI instrument for prevalence studies refers to whether a study measured the condition of interest in a standard, reliable way for all participants.

Response rate — In the JBI instrument for prevalence studies refers to whether a study had an appropriate response rate or appropriately managed a low response rate.

Sample frame — In the JBI instrument for prevalence studies refers to whether a study established a sample frame appropriate to address the target population of healthcare and social workers in EU-27.

Sample size: In the JBI instrument for prevalence studies refers to whether a study recruited a sample size large enough to obtain precise prevalence estimates**.**

Sampling method — In the JBI instrument for prevalence studies refers to whether a study applied random probabilistic sampling, census recruitment, or comprehensive sampling.

Social support — Physical and emotional comfort provided by an individual's entourage (family, friends, co-workers and others).

Statistical analysis — In the JBI instrument for prevalence studies refers to whether a study conducted appropriate statistical analysis and calculations to estimate prevalence rates.

Statistical heterogeneity — Variability in the numerical effects of different studies being synthesised in a systematic review (usually with metanalysis techniques).

Stigmatisation — Discrimination of health and social workers by community and family members due to fear of contagion.

Study description — The JBI instrument for prevalence studies refers to whether a study provided enough descriptive data for the sample.

Suicidal thoughts — Abstract or concrete thoughts about suicide, with or without active ideation of suicide plans.

Work-life balance — Level of prioritisation between personal or family needs (access to child care, need for home care of dependent relatives, lack of transportation or lodging) and professional needs (long work hours).

Work organisation — Organisation of how work is planned, organised and managed in terms of work processes, job design, responsibilities, task allocation, work scheduling, work pace, rules and procedures, and decision-making processes.

Appendix B — Literature search strings for MEDLINE and EMBASE

Ovid **MEDLINE**(R)
<1946 to July Week 2 2023>
26/07/2023

1 exp Health Personnel/ 612569
2 exp Health Occupations/ 1854115
3 exp Emergency Responders/ 15455
4 exp Social Workers/ 1099
5 exp Occupational Health/ 36570
6 (("health care" or healthcare or "front line" or frontline) adj3 (professional* or personnel or worker* or workforce or provider* or staff)).ti,ab. 162864
7 (physician* or doctor* or nurse* or midwife* or midwive* or pharmacist* or physiotherapist* or geriatrician* or gerontologist*).ti,ab. 799296
8 (general adj3 practitioner*).ti,ab. 54992
9 (allied adj2 health).ti, ab. 10283
10 ((healthcare or "health care") adj2 assistant*).ti,ab. 809
11 ((physical or occupational) adj3 therapist*).ti,ab. 12084
12 (social adj2 (care or worker*)).ti,ab. 21002
13 ((emergency or medical) adj2 technician*).ti,ab. 1590
14 first responde*.ti,ab. 2705
15 paramedic*.ti,ab. 8465
16 ((speech or language) adj3 therapist*).ti,ab. 2251
17 ((medical or hospital) adj2 staff).ti,ab. 20462
18 (nursing or resident or residents or "care home*").ti. 190242
19 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 2945499
20 exp Occupational Stress/ 20395
21 exp Stress, Psychological/ 152795
22 exp Anxiety/ 111630
23 exp Depression/ 150747
24 exp Stress Disorders, Post-Traumatic/ 41221
25 exp Mental Fatigue/ 2872
26 exp Work-Life Balance/ 1057
27 (psychosocial or "psycho social").ti,ab. 105913
28 psychological.ti,ab. 231032
29 mental.ti. 120316
30 (mental adj2 health).ti,ab. 172786
31 emotion*.ti,ab. 215107
32 compassion.ti,ab. 7007
33 empath*.ti,ab. 17791
34 (burnout or "burn out").ti,ab. 16220
35 exhaustion.ti,ab. 22993
36 (wellbeing or "well being").ti,ab. 109900
37 resilien*.ti,ab. 42338
38 vulnerability.ti,ab. 60426
39 stress.ti,ab. 792894
40 distress.ti,ab. 127185
41 PTSD.ti,ab. 26937
42 post-traumatic.ti,ab. 32467
43 anxiety.ti,ab. 215623
44 depression.ti,ab. 356595
45 fear.ti,ab. 71609
46 fatigue.ti,ab. 101392
47 sleep*.ti,ab. 198852
48 insomnia.ti,ab. 23483

49 absenteeism*.ti,ab. 6284
50 quitting.ti,ab. 7949
51 (leav* adj5 work*).ti,ab. 3342
52 (reduc* adj3 (work* or hour* or employ*)).ti,ab. 22082
53 (declin* adj5 (leadership or opportunit* or responsabilit*)).ti,ab. 244
54 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51 or 52 or 53 2263024
55 exp SARS-CoV-2/ 156115
56 exp COVID-19/ 230965
57 "SARS-CoV-2".ti,ab. 72450
58 SARSCoV2.ti,ab. 58
59 "SARSCoV 2".ti,ab. 284
60 "COVID 19".ti,ab. 201337
61 “COVID19”.ti,ab. 1452
62 (coronavirus adj3 ("2019" or "19")).ti,ab. 49953
63 55 or 56 or 57 or 58 or 59 or 60 or 61 or 62 240555
64 Europe/ or exp Austria/ or exp Belgium/ or exp Bulgaria/ or exp France/ or exp Croatia/ or exp Cyprus/ or exp Czech Republic/ or exp Denmark/ or exp Estonia/ or exp Finland/ or exp Hungary/ or exp Ireland/ or exp Latvia/ or exp Lithuania/ or exp Luxembourg/ or exp Malta/ or exp Poland/ or exp Portugal/ or exp Romania/ or exp Slovakia/ or exp Slovenia/ or exp Sweden/ or exp Germany/ or exp Greece/ or exp Italy/ or exp Netherlands/ or exp Spain/ 971883
65 ("europ*" or Austria or Belgium or Bulgaria or France or Germany or Greece or Italy or Italian or Netherlands or Dutch or Spain or Croatia or Cyprus or "Czech Republic" or Denmark or Estonia or Finland or Hungary or Ireland or Latvia or Lithuania or Luxembourg or Malta or Poland or Portugal or Romania or Slovakia or Slovenia or Sweden).ti,ab. 829140
66 exp Norway/ or exp Switzerland/ or exp United Kingdom/ or exp Iceland/ or exp Liechtenstein/ 474457
67 (Norway or Switzerland or Swiss or "United Kingdom" or England or Scotland or Wales or Iceland or Liechtenstein).ti,ab. or UK.ti. 231131
68 64 or 65 or 66 or 67 1863641
69 19 and 54 and 63 and 68 2535

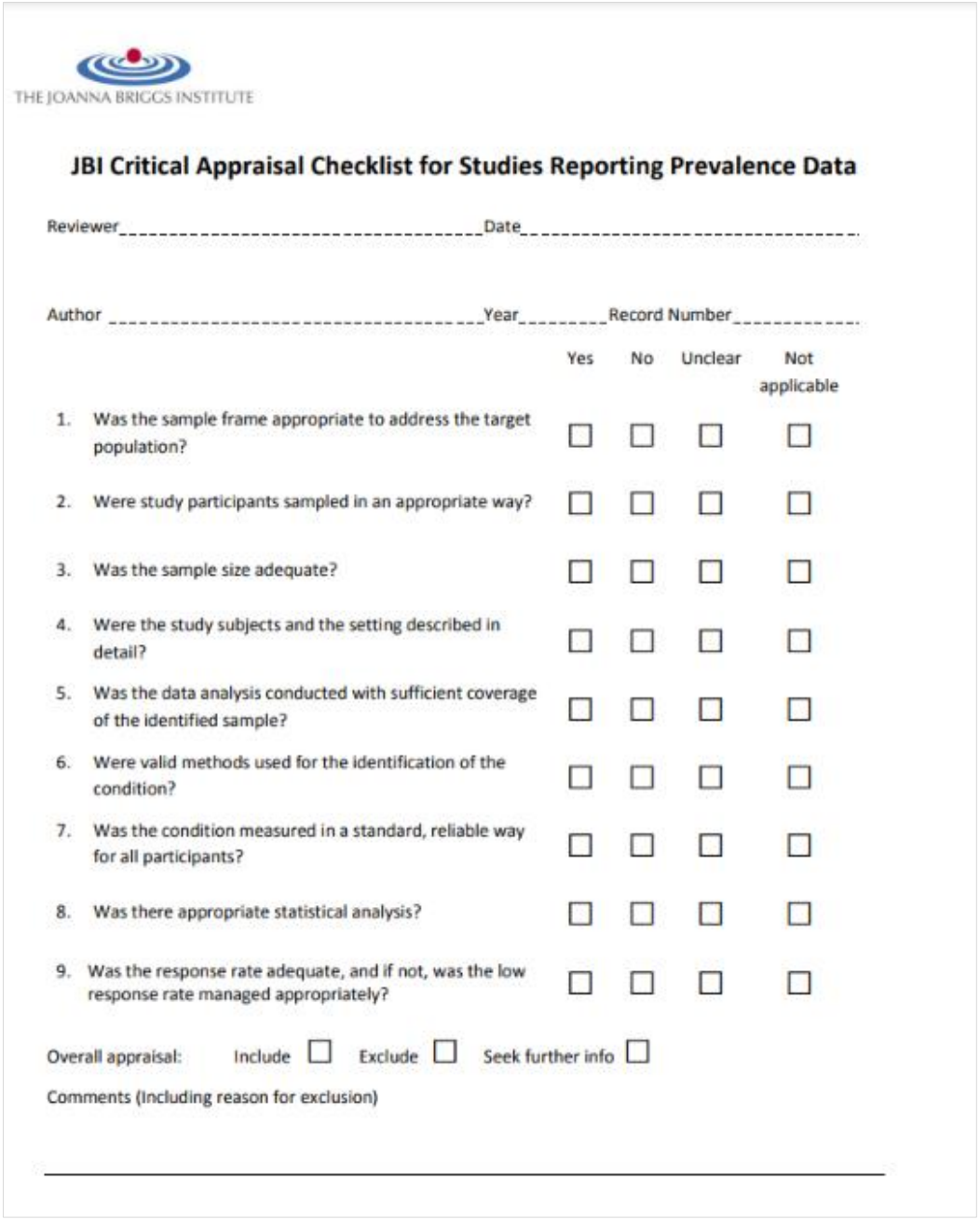
EMBASE

26/07/2023

#1 'health care personnel'/de AND [embase]/lim 196822
#2 'medical profession'/de AND [embase]/lim 17345
#3 'emergency health service'/de AND [embase]/lim 67277
#4 'social worker'/de AND [embase]/lim 14674
#5 'occupational health'/de AND [embase]/lim 27041
#6 ((('health care' OR healthcare OR 'front line' OR frontline) NEAR/3 (professional* OR personnel OR worker* OR workforce OR provider* OR staff)):ti,ab) AND [embase]/lim 187776
#7 (physician*:ti,ab OR doctor*:ti,ab OR nurse*:ti,ab OR midwife*:ti,ab OR midwive*:ti,ab OR pharmacist*:ti,ab OR physiotherapist*:ti,ab OR geriatrician*:ti,ab OR gerontologist*:ti,ab) AND [embase]/lim 865236
#8 ((general NEXT/3 practitioner*):ti,ab) AND [embase]/lim 60025
#9 ((allied NEXT/2 health):ti,ab) AND [embase]/lim 10092
#10 (((healthcare OR 'health care') NEXT/2 assistant*):ti,ab) AND [embase]/lim 872
#11 (((physical OR occupational) NEXT/3 therapist*):ti,ab) AND [embase]/lim 15206
#12 (((care OR worker*) NEAR/3 social):ti,ab) AND [embase]/lim 27868
#13 (((emergency OR medical) NEAR/2 technician*):ti,ab) AND [embase]/lim 1725
#14 'first responde*':ti,ab AND [embase]/lim 3059
#15 paramedic*:ti,ab AND [embase]/lim 11069
#16 (((speech OR language) NEXT/3 therapist*):ti,ab) AND [embase]/lim 3334
#17 (((medical OR hospital) NEXT/2 staff):ti,ab) AND [embase]/lim 24831
#18 (nursing:ti OR resident:ti OR residents:ti OR 'care home*':ti) AND [embase]/lim 77668
#19 #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 1322023
#20 'job stress'/de AND [embase]/lim 11612
#21 'mental stress'/de AND [embase]/lim 46055
#22 'anxiety'/de AND [embase]/lim 246084
#23 'depression'/de AND [embase]/lim 419717
#24 'posttraumatic stress disorder'/de AND [embase]/lim 64848
#25 'mental fatigue'/de AND [embase]/lim 508
#26 'burnout'/de AND [embase]/lim 15474
#27 'work-life balance'/de AND [embase]/lim 2389
#28 mental:ti AND [embase]/lim 100911
#29 ((mental NEXT/3 health):ti,ab) AND [embase]/lim 191360
#30 ((leav* NEXT/5 work*):ti,ab) AND [embase]/lim 1991
#31 ((reduc* NEXT/3 (work* OR hour* OR employ*)):ti,ab) AND [embase]/lim 15649
#32 ((declin* NEXT/5 (leadership OR opportunit* OR responsabil*)):ti,ab) AND [embase]/lim 161
#33 (psychosocial:ti,ab OR 'psycho social':ti,ab OR psychological:ti,ab OR emotion*:ti,ab OR compassion:ti,ab OR empath*:ti,ab OR burnout:ti,ab OR 'burn out':ti,ab OR exhaustion:ti,ab OR wellbeing:ti,ab OR 'well being':ti,ab OR resilien*:ti,ab OR vulnerability:ti,ab OR stress:ti,ab OR distress:ti,ab OR ptsd:ti,ab OR 'post traumatic':ti,ab OR anxiety:ti,ab OR depression:ti,ab OR fear:ti,ab OR fatigue:ti,ab OR sleep*:ti,ab OR insomnia:ti,ab OR absenteeism*:ti,ab OR quitting:ti,ab) AND [embase]/lim 2543349
#34 #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33 2820010
#35 'severe acute respiratory syndrome coronavirus 2'/de AND [embase]/lim 84220
#36 'coronavirus disease 2019'/de AND [embase]/lim 313533
#37 'sars-cov-2':ti,ab AND [embase]/lim 101197
#38 'sarscov2':ti,ab AND [embase]/lim 101418
#39 'covid 19':ti,ab AND [embase]/lim 280645
#40 'covid19':ti,ab AND [embase]/lim 277459
#41 ((coronavirus NEXT/3 (2019 OR 19)):ti,ab) AND [embase]/lim 64605
#42 #35 OR #36 OR #37 OR #38 OR #39 OR #40 OR #41 353958
#43 'europe'/exp AND [embase]/lim 1108549
#44 ('europ*':ti,ab OR austria:ti,ab OR belgium:ti,ab OR bulgaria:ti,ab OR france:ti,ab OR germany:ti,ab OR greece:ti,ab OR italy:ti,ab OR italian:ti,ab OR netherlands:ti,ab OR

	dutch:ti,ab OR spain:ti,ab OR croatia:ti,ab OR cyprus:ti,ab OR 'czech republic':ti,ab OR denmark:ti,ab OR estonia:ti,ab OR finland:ti,ab OR hungary:ti,ab OR ireland:ti,ab OR latvia:ti,ab OR lithuania:ti,ab OR luxembourg:ti,ab OR malta:ti,ab OR poland:ti,ab OR portugal:ti,ab OR romania:ti,ab OR slovakia:ti,ab OR slovenia:ti,ab OR sweden:ti,ab) AND [embase]/lim	1293290
#45	(norway:ti,ab OR switzerland:ti,ab OR swiss:ti,ab OR 'united kingdom':ti,ab OR england:ti,ab OR scotland:ti,ab OR wales:ti,ab OR iceland:ti,ab OR liechtenstein:ti,ab OR uk:ti) AND [embase]/lim	288061
#46	#43 OR #44 OR #45	1914047
#47	#19 AND #34 AND #42 AND #46	2888

Appendix C — Critical appraisal checklist from Joanna Brigs Institute



THE JOANNA BRIGGS INSTITUTE

JBI Critical Appraisal Checklist for Studies Reporting Prevalence Data

Reviewer_____Date_____

Author _____Year_____Record Number_____

	Yes	No	Unclear	Not applicable
1. Was the sample frame appropriate to address the target population?	☐	☐	☐	☐
2. Were study participants sampled in an appropriate way?	☐	☐	☐	☐
3. Was the sample size adequate?	☐	☐	☐	☐
4. Were the study subjects and the setting described in detail?	☐	☐	☐	☐
5. Was the data analysis conducted with sufficient coverage of the identified sample?	☐	☐	☐	☐
6. Were valid methods used for the identification of the condition?	☐	☐	☐	☐
7. Was the condition measured in a standard, reliable way for all participants?	☐	☐	☐	☐
8. Was there appropriate statistical analysis?	☐	☐	☐	☐
9. Was the response rate adequate, and if not, was the low response rate managed appropriately?	☐	☐	☐	☐

Overall appraisal: Include ☐ Exclude ☐ Seek further info ☐

Comments (Including reason for exclusion)

Source: https://jbi.global/critical-appraisal-tools; https://jbi.global/sites/default/files/2020-08/Checklist_for_Prevalence_Studies.pdf

Appendix D — Scales used to assess mental health outcomes

Anxiety was assessed by the following validated inventories: General Anxiety Disorder Scale was used by 24 studies, Hospital Anxiety and Depression Scale was used by 16 studies, Depression, Anxiety and Stress Scale was used by 8 studies, Zung Self-Rating Anxiety Scale was used by 2 studies, Beck Depression Inventory was used by 1 study and State-Trait Anxiety Inventory-Form Y1 was used by 1 study.

General Anxiety Disorder version 2 items (GAD-2) was used by: Schaffler 2022 Ladwig 2023 Valaine 2021 Morawa 2021 Rothke 2021 Schmuck 2021 Schug 2021.

General Anxiety Disorder version 7 items (GAD-7) was used by: Alonso 2021, Bellini 2021, Bruffaerts 2021, Crotty 2022, Consolo 2020, Costa 2023, Guerrero 2021, Jimenez-Labaig 2021 Mattila 2021, Quintana-Domeque 2021, Skoda 2020, Sommerlatte 2023, Valaine 2021, Vallee 2020, ViejoCasas 2023, Voorspoels 2021, Zara 2021.

Hospital Anxiety and Depression Scale (HADS) was used by: Azoulay 2020a, Azoulay 2020b, Azoulay 2021, Bourne 2022, Budzynska 2023, Castioni 2021, Chene 2022, Conejero 2023, CousinCabrolier 2023, Damico 2022, Denning 2021, Florin 2020, Frajerman 2022, Heesakkers 2021, Hilmi 2020, Luceno-Moreno 2020.

Depression Anxiety and Stress Scale - 21 items (DASS-21) was used by: Failla 2023, Ferreira 2021, Kapetanos 2021, Karalafti 2022, Mekhemar 2021, Samara 2021, VlahTomicevic 2021, Zgliczynski 2023.

Zung Self-Rating Anxiety Scale (SAS) was used by: Simonetti 2021, Lasalvia 2022

Beck Anxiety Inventory (BAI) was used by: Gambaro 2023.

ICD-10 was used by: Weibelzahl 2021

State-Trait Anxiety Inventory-Form Y1 (STAI Y1) was used by: Castelli 2021

Depression was assessed by the following validated inventories: Depression, Anxiety and Stress Scale was used by 10 studies, Beck Depression Inventory was used by 4 studies, Hospital Anxiety and Depression Scale was used by 19 studies, Patient Health Questionnaire was used by was used by 23, WHO-5 questionnaire was used by two studies and CES-D was used by one study.

Depression Anxiety and Stress Scale - 21 items (DASS-21) was used by: Failla 2023, Ferreira 2021, Kapetanos 2021, Karalafti 2022, Mekhemar 2021, Norkiene 2021, Paolocci 2021, Samara 2021, VlahTomicevic 2021, Zgliczynski 2023.

Beck Anxiety Inventory (BAI) was used by: Castelli 2021, Gambaro 2023, Gramaglia 2021 andZara 2021.

Hospital Anxiety and Depression Scale (HADS) was used by: Azoulay 2020, Azoulay 2020b, Azoulay 2021, Budzynska 2023, Bourne 2022, Castioni 2021, Chene 2022, Conejero Cousin-Cabrioler 2023, Damico 2022, Denning 2021, Florin 2020, Frajeerman 2022, Frajerman 2023, Heesakers 2021, Heesakers 2023, Hilmi 2020, Lucero-Moreno 2020, Van Dijc 2022,

Patient Health Questionnaire 2 items (PHQ-2) was used by: Schaffler 2022, Schmuck 2021, Schug 2021

Patient Health Questionnaire 4 items (PHQ-4) was used by: Morawa 2021, Rothke 2021

Patient Health Questionnaire 8 items (PHQ-8) was used by: Alonso 2021.

Patient Health Questionnaire 9 items (PHQ-9) was used by: Cedrone 2023, Chatzitofis 2021, Costa 2023, Czepiel 2022, Guerrero 2021, Husky 2022, Jimenez-Labaig 2021, Lasalvia 2022, Mediavilla 2021, Moro 2022, Quintana Domeque 2021, Sommerlate 2023, Valaine 2021, Viejo Casas 2021, Voerpoels 2021, Valleé 2020.

Patient Health Questionnaire 10 items (PHQ-10) was used by: Walvik 2021.

WHO-5 questionnaire was used by McLoughlin 2022 and Brady 2022.

CES-D was used by Fond 2022.

Stress was assessed by the following validated inventories: Depression, Anxiety and Stress Scale was used by 11 studies, Perceived Stress Scale was used by 9 studies, Self-applied Acute Stress Scale was used by one study and Secondary Traumatic Stress Scale-modified was used by one study.

Depression, Anxiety and Stress Scale 21 items (DASS-21) was used by: Failla 2023, Ferreira 2021, Kapetanos 2021, Karlafti 2022, Lamas-Mendoza 2023, Mekhemar 2021, Norkiene 2021, Paolocci 2021, Samara 2021, VlahTomicevic 2021, Zgliczynski 2023.

Perceived Stress Scale 4 items (PSS-4) was used by Izdebski 2023.

Perceived Stress Scale 10 items (PSS-10) was used by Bernburg 2022, Chatzittofis 2021, Chene 2022, Dutour 2021, Schaffler 2022, Tavel 2022.

Perceived Stress Scale 14 items (PSS-14) was used by Jubin 2022, González-Pando 2022.

Self-applied Acute Stress Scale (EASE) was used by Cebrián-Cuenca 2021.

Secondary Traumatic Stress Scale-modified (STSS-M) was used by Karanikola 2022.

Distress was assessed by the following validated inventories: General Health Questionnaire was used by 10 studies, Kessler Psychological Distress Scale was used by one study, Demand Control Support Questionnaire was used by one study, Mental Health Index, which is the mental-health subscale of the RAND-36 (SF36) self-report questionnaire of health-related quality of life was used by one study, Peritraumatic Distress Index was used by one study.

General Health Questionnaire 12 items (GHQ-12) was used by: Gomez-Salgado 2021, Mediavilla 2021, Buonprisco 2022, Moro 2022, Fournier 2022, Martinez-Caballero 2021, Czepiel 2022, Gambaro 2023, Gramaglia 2021, Varani 2021.

Kessler Psychological Distress Scale 10 items (K10) was used by Elsayed 2022.

Demand Control Support Questionnaire (DCSQ) was used by Serenari 2023.

Mental Health Index 5 items (MHI-5) was used by Rosenstrom 2022.

Peritraumatic Distress Index (CPDI) was used by Constantini 2022.

Post-traumatic Stress Disorder (PTSD) symptoms and diagnosis were assessed by the following validated inventories: Primary Care PTSD Screen for DSM-5 was used by one study, Peritraumatic Dissociative Experiences Questionnaire was used by one study, Davidson Trauma Scale was used by one study, ICD-10 was used by one study, Impact of Event Scale was used by 17 studies, Posttraumatic Stress Disorder Checklist was used by 9 studies.

Primary Care PTSD Screen (PC-PTSD) was used by Czepiel 2022.

Peritraumatic Dissociative Experiences Questionnaire (PDEQ) was used by Azoulay 2020.

Davidson Trauma Scale 8 items (DTS-8) was used by Martínez-Caballero 2021.

ICD-10 was used by Rantanen 2022.

Impact of Event Scale 6 items (IES-6) was used by Heesakers 2021, Heesakers 2022.

Impact of Event Scale 15 items (IES-15) was used by Gramaglia 2021, Gambaro 2023.

Impact of Event Scale- Revised 22 items (IES-R 22) was used by: Lasalvia 2022, VlahTomicevic 2021, Brady 2022, Azoulay 2021, CousinCabrolier 2023, Mekhemar 2021, Fournier 2022, Lange 2020, Laurent 2022, ViejoCasas 2023, Chatzittofis 2021b, Zara 2021.

Posttraumatic Stress Disorder Checklist 5 items (PCL-5) was used by Voorspoels 2021, Alonso 2021, Costa 2023, Conejero 2023, Bassi 2021, Castelli 2021, Husky 2022, Piacentini 2022.

Posttraumatic Stress Disorder Checklist (PCL-C) was used by Damico 2022

Insomnia and/or sleep disturbances were assessed by the following validated inventories: Insomnia Severity Index was used by 7 studies, Athens Insomnia Scale was used by one study, Pittsburgh Sleep Quality Index was used by 3 studies, Uppsala Sleep Inventory by one study.

Insomnia Severity Index 2 items (ISI-2) was used by Schaffler 2022.

Insomnia Severity Index 7 items (ISI-7) was used by: Zgliczynski 2023, Viejo-Cases 2023, Florin 2020, Cousin Cabrioler 2023, Rosenstrom 2022, Valllée 2020.

Athens Insomnia Scale (AIS-8) was used by Martínez-Caballero 2021.

Pittsburgh Sleep Quality Index (PSQI) was used by Simonetti 2022, Botti 2022 and Lamas Mendoza 2023.

Uppsala Sleep Inventory (USI) was used by Ladwig 2023.

Burnout was assessed by the following validated inventories: The Maslach Burnout inventory was used by 31 studies, Copenhagen Burnout Inventory was used by four studies, Burnout Assessment Tool was used by four studies, Oldenburg Burnout Inventory was used by two studies, Shirom-Melamed Burnout Measure was used by two studies.

Maslach Burnout Inventory (MBI) was used by: Bruyneel 2023, Kapetanos 2021, Santos 2022, Macia-Rodriguez 2021, Martinez-Lopez 2021, Fond 2022, Khan 2022, McLoughlin 2022, Mion 2021, Sommerlatte 2023, Meynaar 2021, Poelmann 2021, Treluyer 2021, Botti 2022, Varani 2021, Serenari 2023, Azoulay 2020b, Azoulay 2021, Sipos 2023, de la Vega Sanchez 2023, Frigo 2023, Gambaro 2023, Gramaglia 2021, Lange 2020, Lasalvia 2022, Loscalzo 2021, Luceno-Moreno 2020, Michela 2023, Muller 2023, Lungulesco 2022, Mavrovounis 2022

Copenhagen Burnout Inventory (CBI) was used by: Jacome 2021, Kurzthaler 2021, Frajerman 2022, Fiabane 2023.

Burnout Assessment Tool 12 items (BAT-12) was used by: Izdebski 2023, Mai 2022a, Mai 2022b, vanDijk 2022

Oldenburg Burnout Inventory (OLBI) was used by: Karalafti 2022, Denning 2021,

Shirom-Melamed Burnout Measure (SMBM) was used by: Costa 2023, Gonzalez-Pando 2022

Suicidal Thoughts was assessed by the following validated inventories: Columbia Suicide Severity Rating Scale was used by 6 studies, and Paykel Suicide Scale was used by one study.

Columbia Suicide Severity Rating Scale (C-SSRS) was used by: Mortier 2022, Mortier 2021, Brady 2022, Brady 2023, Mediavilla 2021 and Voorspoels 2021.

Paykel Suicide Scale was used by de la Vega Sanchez 2023.

Appendix E — Disaggregated data by burnout dimension

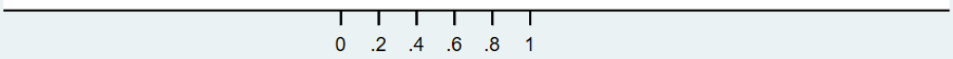
Covidence ID	Study	MBI DP	MBI EE	MBI PA
#1589	Gambaro 2023	65,4%	42,9%	94,8%
#1699	Lungulesco 2022	29,5%	68,9%	45,1%
#189	Loscalzo 2021	52,9%	57,6%	25,3%
#2069	Lange 2020	84,4%	56,3%	94,8%
#2508	Gramaglia 2021	86,1%	51,3%	33,7%
#314	Muller 2023	8.0%	14.5%	NR
#315	Sipos 2023	26.30%	44,9%	46,3%
#3282	Lasalvia 2022	26,4%	34,2%	37,3%
#336	Frigo 2023	59,2%	70,3%	64,5%
#3906	de la Vega Sanchez	48,6%	42,7%	50,3%
#3954	Luceno-Moreno	13,8%	39,1%	8,0%
#4202	Mavrovounis 2022	31,1%	63,7%	18,4%
#748	Michela 2023	59,2%	70,5%	64,5%
		CBI personal	CBI work-related	CBI patient-related
#337	Jacome 2021	41.7%	42.1%	25.4%
		BAT-12 exhaustion		
#2274	VanDijk 2022	22.2%		

Source: authors' elaboration

Appendix F — Prevalence results by EU-country for all mental health conditions in the HeSCare sector

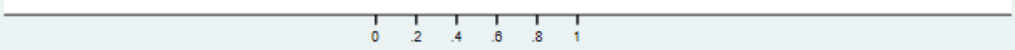
Prevalence in Austria

Outcome	Proportion (95% CI)	I2	Studies	Sample
Outcome 1: Anxiety	0.11 (0.08, 0.14)	NA	1	994
Outcome 3: Depression	0.11 (0.09, 0.14)	NA	1	994
Outcome 5: Acute stress	0.24 (0.22, 0.27)	NA	1	994
Outcome 10: Burnout (strict definition)	0.25 (0.21, 0.29)	NA	1	994
Outcome 11: Burnout (broad definition)	0.25 (0.21, 0.29)	NA	1	994



Prevalence in Belgium

Outcome	Proportion (95% CI)	I2	Studies	Sample
Outcome 1: Anxiety	0.33 (0.29, 0.37)	NA	1	6,409
Outcome 2: Anxiety moderate/severe	0.08 (0.08, 0.09)	NA	1	6,409
Outcome 4: Depression moderate/severe	0.09 (0.08, 0.09)	NA	1	6,409
Outcome 9: PTSD	0.03 (0.02, 0.03)	NA	1	6,409
Outcome 10: Burnout (strict definition)	0.20 (0.19, 0.22)	NA	1	2,183
Outcome 11: Burnout (broad definition)	0.54 (0.53, 0.55)	NA	2	6,735
Outcome 12: Any suicidal thought	0.01 (0.01, 0.02)	NA	1	6,409



Prevalence in Croatia

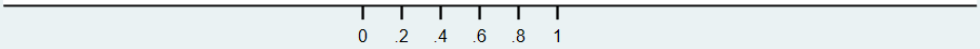
Outcome	Proportion (95% CI)	I2	Studies	Sample
Outcome 1: Anxiety	0.33 (0.29, 0.37)	NA	1	534
Outcome 2: Anxiety moderate/severe	0.20 (0.17, 0.24)	NA	1	534
Outcome 3: Depression	0.31 (0.27, 0.35)	NA	1	534
Outcome 4: Depression moderate/severe	0.19 (0.16, 0.22)	NA	1	534
Outcome 5: Acute stress	0.31 (0.27, 0.35)	NA	1	534
Outcome 6: Acute stress moderate/severe	0.21 (0.18, 0.25)	NA	1	534
Outcome 9: PTSD	0.33 (0.29, 0.37)	NA	1	534

Prevalence in Republic of Cyprus

Outcome	Proportion (95% CI)	I2	Studies	Sample
Outcome 1: Anxiety	0.58 (0.53, 0.63)	NA	1	381
Outcome 2: Anxiety moderate/severe	0.50 (0.45, 0.55)	NA	1	381
Outcome 3: Depression	0.51 (0.46, 0.56)	NA	1	381
Outcome 4: Depression moderate/severe	0.27 (0.24, 0.30)	NA	2	805
Outcome 5: Acute stress	0.64 (0.38, 0.83)	96.8	3	1038
Outcome 6: Acute stress moderate/severe	0.35 (0.20, 0.54)	93.6	3	1038
Outcome 9: PTSD	0.15 (0.11, 0.18)	NA	1	424
Outcome 10: Burnout (strict definition)	0.12 (0.09, 0.16)	NA	1	381
Outcome 11: Burnout (broad definition)	0.12 (0.09, 0.16)	NA	1	381

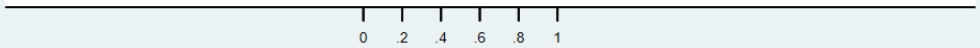
Prevalence in Czech Republic

Outcome	Proportion (95% CI)	I2	Studies	Sample
Outcome 1: Anxiety	0.14 (0.11, 0.18)	NA	1	492
Outcome 2: Anxiety moderate/severe	0.05 (0.03, 0.08)	NA	1	492
Outcome 3: Depression	0.22 (0.18, 0.26)	NA	1	492
Outcome 4: Depression moderate/severe	0.06 (0.04, 0.09)	NA	1	492
Outcome 5: Acute stress	0.13 (0.07, 0.20)	NA	1	492



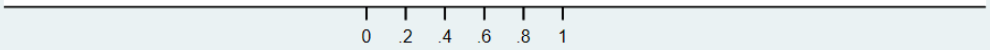
Prevalence in Denmark

Outcome	Proportion (95% CI)	I2	Studies	Sample
Outcome 1: Anxiety	0.13 (0.06, 0.23)	NA	1	74
Outcome 3: Depression	0.30 (0.19, 0.44)	NA	1	74
Outcome 4: Depression moderate/severe	0.05 (0.01, 0.15)	NA	1	74



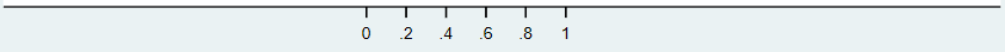
Prevalence in Finland

Outcome	Proportion (95% CI)	I2	Studies	Sample
Outcome 1: Anxiety	0.45 (0.42, 0.47)	NA	1	1948
Outcome 2: Anxiety moderate/severe	0.14 (0.13, 0.16)	NA	1	1948
Outcome 4: Depression moderate/severe	0.23 (0.20, 0.26)	NA	1	844
Outcome 7: Distress	0.15 (0.14, 0.16)	NA	1	4804
Outcome 8: Insomnia/sleep disturbances	0.10 (0.09, 0.10)	NA	1	4804
Outcome 9: PTSD	0.10 (0.08, 0.13)	NA	1	844

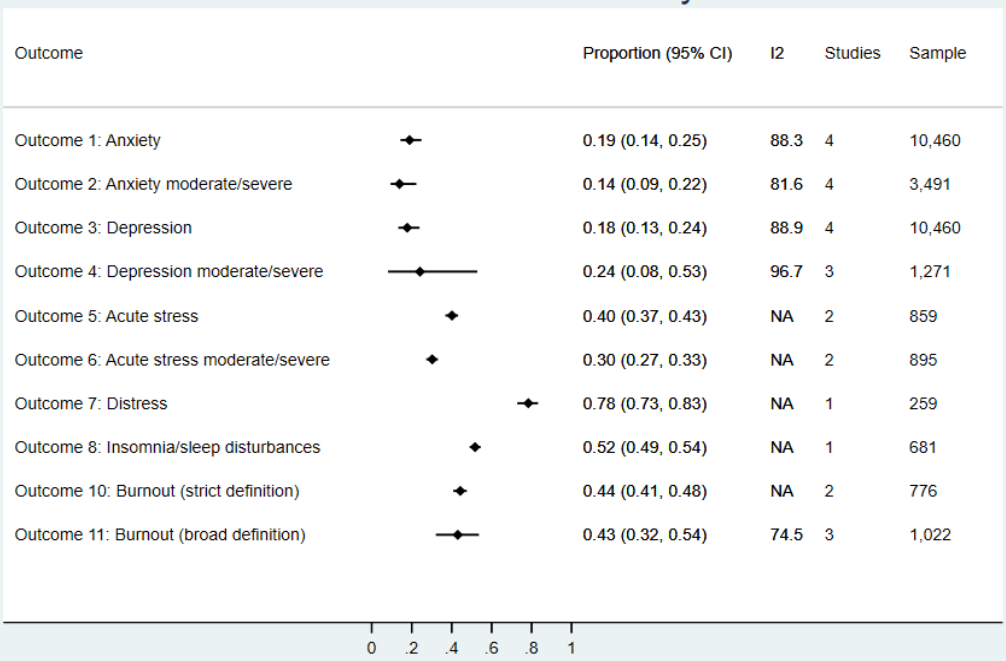


Prevalence in France

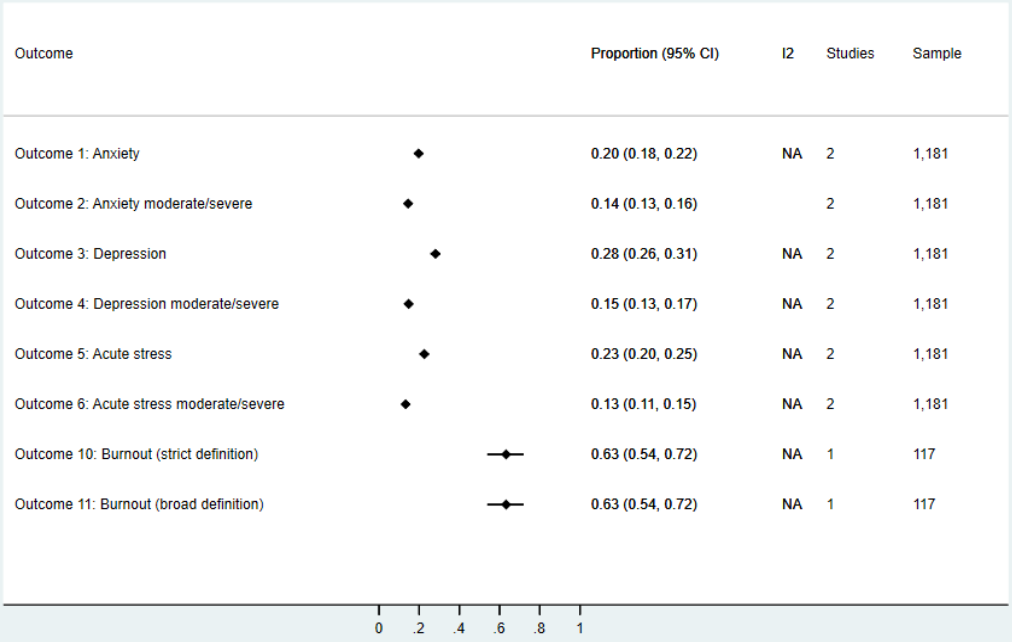
Outcome	Proportion (95% CI)	I2	Studies	Sample
Outcome 1: Anxiety	0.40 (0.29, 0.53)	97.9	8	8,338
Outcome 2: Anxiety moderate/severe	0.17 (0.12, 0.28)	95.60	10	11,823
Outcome 3: Depression	0.29 (0.22, 0.40)	97.4	9	18,635
Outcome 4: Depression moderate/severe	0.15 (0.10, 0.29)	96.55	10	11,823
Outcome 5: Acute stress	0.63 (0.62, 0.64)	NA	2	10,570
Outcome 6: Acute stress moderate/severe	0.37 (0.15, 0.63)	99.4	3	12,135
Outcome 7: Distress	0.57 (0.55, 0.58)	NA	1	4,208
Outcome 8: Insomnia/sleep disturbances	0.25 (0.07, 0.55)	99.2	3	3,716
Outcome 9: PTSD	0.23 (0.18, 0.30)	87.69	8	10,315
Outcome 10: Burnout (strict definition)	0.71 (0.69, 0.73)	NA	1	1,992
Outcome 11: Burnout (broad definition)	0.53 (0.38, 0.66)	97.9	5	14,549



Prevalence in Germany



Prevalence in Greece

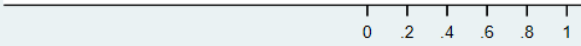


Prevalence in Ireland

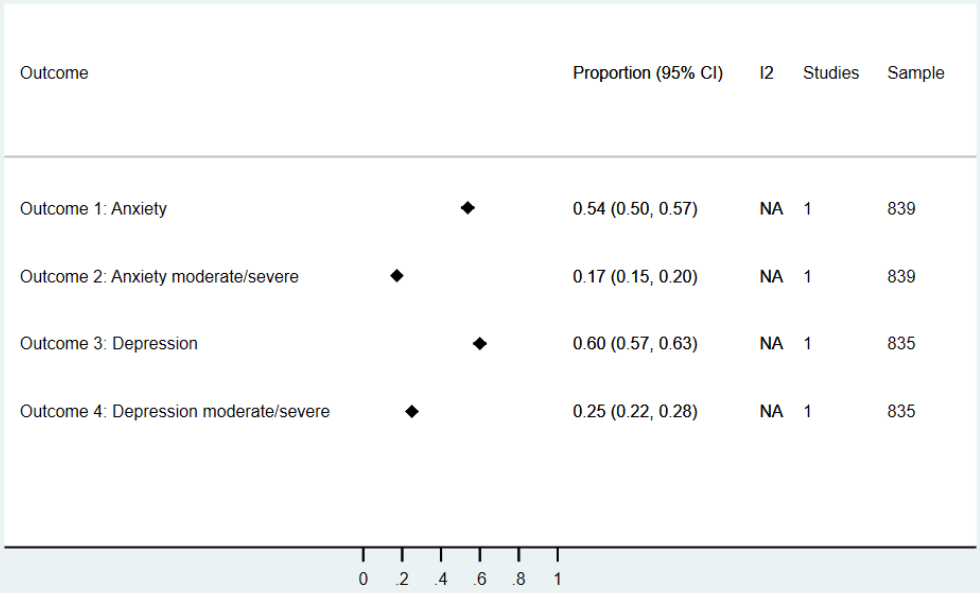
Outcome	Proportion (95% CI)	I2	Studies	Sample
Outcome 1: Anxiety	0.34 (0.20, 0.51)	NA	1	38
Outcome 2: Anxiety moderate/severe	0.05 (0.01, 0.18)	NA	1	38
Outcome 3: Depression	0.48 (0.38, 0.58)	NA	1	50
Outcome 4: Depression moderate/severe	0.24 (0.21, 0.27)	NA	2	767
Outcome 9: PTSD	0.45 (0.42, 0.48)	NA	2	767
Outcome 11: Burnout (broad definition)	0.65 (0.55, 0.74)	NA	1	105
Outcome 12: Any suicidal thought	0.14 (0.11, 0.16)	NA	1	767

Prevalence in Italy

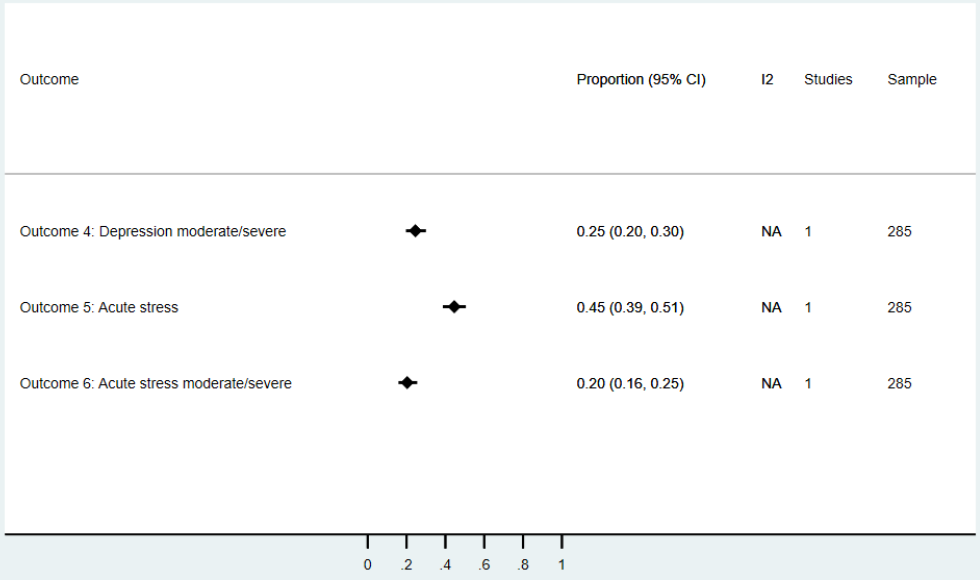
Outcome	Proportion (95% CI)	I2	Studies	Sample
Outcome 1: Anxiety	0.48 (0.25, 0.75)	98.5	9	4,652
Outcome 2: Anxiety moderate/severe	0.26 (0.17, 0.40)	96.3	8	8,557
Outcome 3: Depression	0.39 (0.26, 0.54)	97.1	8	3,702
Outcome 4: Depression moderate/severe	0.21 (0.11, 0.39)	97.1	8	11,161
Outcome 5: Acute stress	0.14 (0.12, 0.16)	NA	1	1,001
Outcome 7: Distress	0.46 (0.24, 0.73)	98.9	6	2,772
Outcome 8: Insomnia/sleep disturbances	0.73 (0.70, 0.75)		2	1,313
Outcome 9: PTSD	0.27 (0.19, 0.38)	94.3	8	11,530
Outcome 10: Burnout (strict definition)	0.18 (0.16, 0.21)	NA	1	958
Outcome 11: Burnout (broad definition)	0.31 (0.16, 0.54)	96.6	4	2,059



Prevalence in Latvia

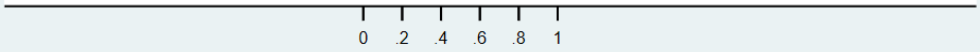


Prevalence in Lithuania



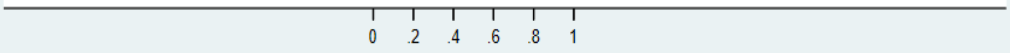
Prevalence in Netherlands

Outcome	Proportion (95% CI)	I2	Studies	Sample
Outcome 1: Anxiety	0.28 (0.26, 0.31)	NA	2	1,315
Outcome 2: Anxiety moderate/severe	0.19 (0.18, 0.21)	0	3	2,665
Outcome 4: Depression moderate/severe	0.13 (0.11, 0.15)	NA	1	994
Outcome 7: Distress	0.37 (0.34, 0.40)	NA	1	994

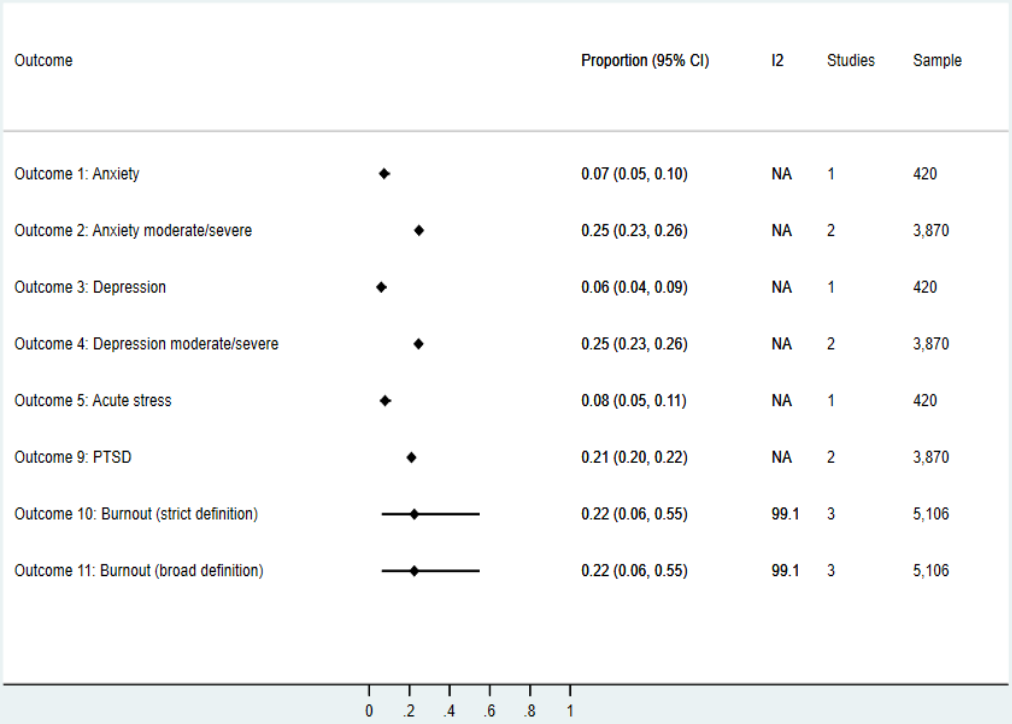


Prevalence in Poland

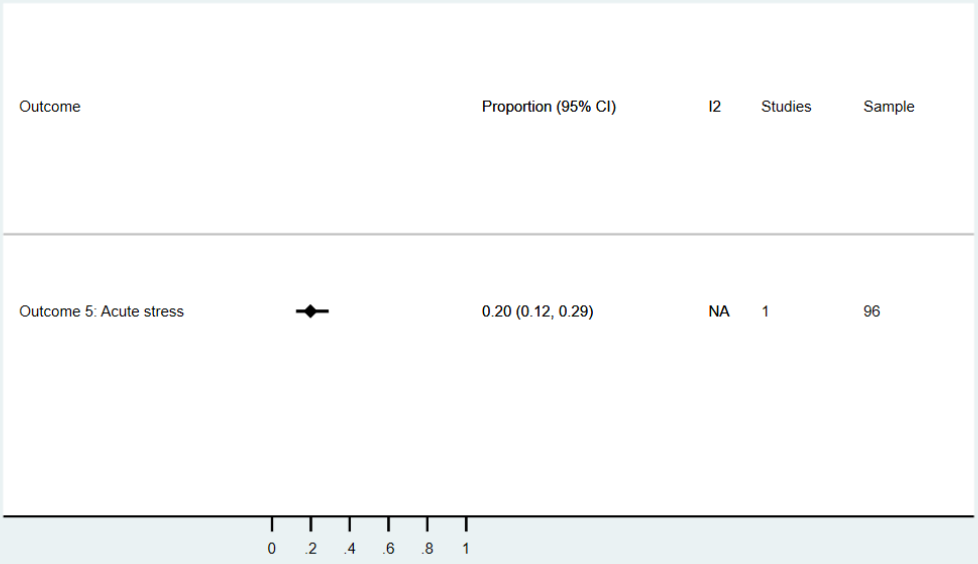
Outcome	Proportion (95% CI)	I2	Studies	Sample
Outcome 1: Anxiety	0.48 (0.44, 0.50)	NA	2	1,049
Outcome 2: Anxiety moderate/severe	0.28 (0.14, 0.49)	94.1	3	1,281
Outcome 3: Depression	0.52 (0.49, 0.54)	NA	2	1,049
Outcome 4: Depression moderate/severe	0.22 (0.05, 0.55)	97.2	3	1,281
Outcome 5: Acute stress	0.59 (0.55, 0.62)	NA	1	767
Outcome 6: Acute stress moderate/severe	0.52 (0.50, 0.53)	NA	2	2,963
Outcome 8: Insomnia/sleep disturbances	0.20 (0.17, 0.23)	NA	1	767
Outcome 10: Burnout (strict definition)	0.22 (0.20, 0.24)	NA	2	2,428
Outcome 11: Burnout (broad definition)	0.22 (0.20, 0.24)	NA	2	2,428



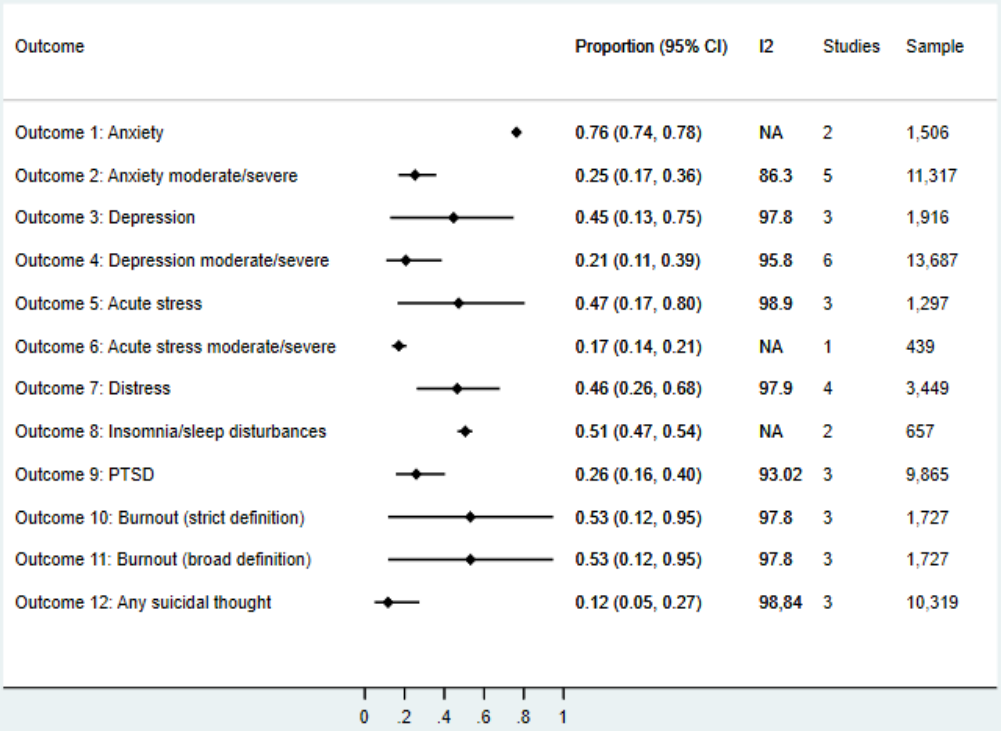
Prevalence in Portugal



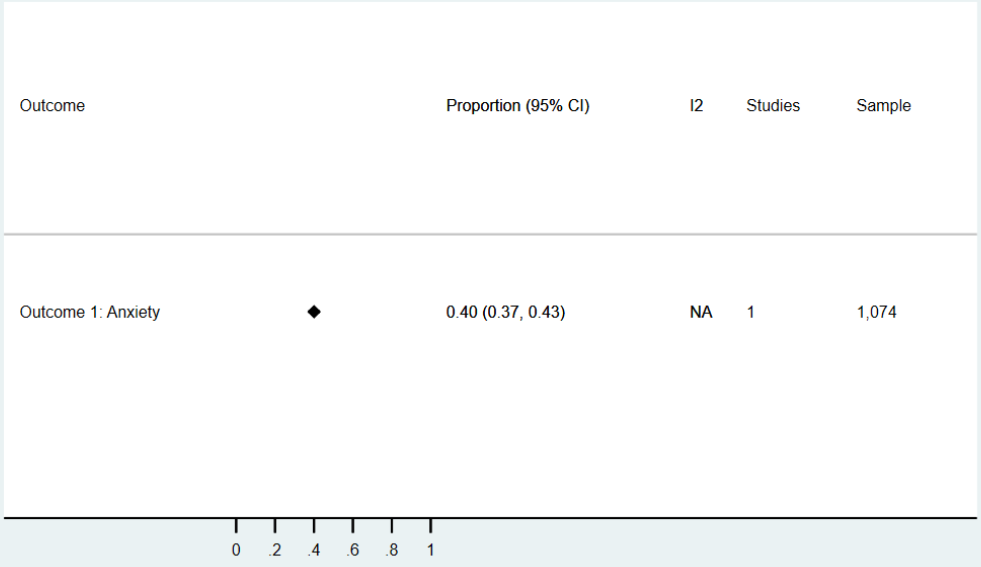
Prevalence in Slovakia



Prevalence in Spain



Prevalence in Sweden



Appendix G — Professional categories in the HeSCare sector reported by the included studies, grouped into 11 general professional categories

- The **Doctors** general category includes results reported for: Physicians, General Practitioners, Freelance doctors, Specialist, Medical staff, Anaesthesiologist, Physician in contact with patients or biological material, ICU specialists, otolaryngologist (ENT) specialists, Intensive care physicians, Psychiatrists, Psycho-oncologists, Oncologists.
- The **Nurses** general category includes results reported for: Nurses, Midwives, ICU and emergency nurses.
- The **Aides** general category includes results reported for: Aides, Nursing assistants, Healthcare assistants, Health-care assistants and technicians.
- The **Residents** general category includes results reported for: Residents, Orthopaedic and Traumatology Residents, Surgical residents, Residents and fellows in surgery, Trainees.
- The **Physiotherapist and Rehabilitation** general category includes results reported for: Physiotherapists, Occupation therapists, Occupational therapist / educators / rehabilitation technicians, Speech therapists.
- The **Radiology staff** general category includes results reported for: Radiology staff, Radiographers, Radiology technicians.
- The **Laboratory staff** general category includes results reported for: Laboratory staff, Laboratory technicians, Technicians.
- The **Social and mental health staff** general category includes results reported for: Psychologists, Psychotherapist, Social workers, Socio-sanitary operators.
- The **Emergency medical technicians (EMTs)** general category includes results reported for: Ambulance drivers, Paramedic, Emergency medical technicians, First responders, Paramedic staff (hospital).
- The **Administration** general category includes results reported for: Administrative staff, Non-clinical staff (admin), Adm. Staff and executives, Administrator / Secretary / Admissions / Patient information, Clinical and non-clinical manager (director), Administrative staff (Hospital administration and management), Researchers.
- The **non-medical staff** general category includes results reported for: Non-medical staff, Cleaning staff, Other profession not involved in patient care, QHSE (quality, hygiene, security, environment), Maintenance staff, Non-medical profession, Dieticians, Hospital pharmacy personnel, Maintenance, food, and security staff, Other (catering, security, transport staff).

Data for unclear professional profiles were not analysed in the subgroup analysis by professional profile.

Appendix H — Assessment of the certainty of evidence using GRADE

We assessed the certainty of the entire body of evidence included in this review on the prevalence of mental health outcomes in healthcare workers after COVID-19 by applying the GRADE (Grading of Recommendations, Assessment, Development, and Evaluation) approach, which is a transparent method for rating the overall certainty of evidence in systematic reviews[41].

Rating the certainty of the evidence is important when moving from evidence production and synthesis to decision-making and may influence the development of solid or weak recommendations in any evidence-based guideline, clinical decision or public policy[197].

While there is no formal guidance for using GRADE in systematic reviews of prevalence yet, some guidance exists on using GRADE for baseline risk or overall prognosis, which guided the assessments conducted in this report[40 41].

The Summary of Findings in **Error! Reference source not found.** summarises the volume of evidence a vailable for each mental health outcome, the numerical synthesis results obtained, and the GRADE quality of evidence assessment.

It shows that the certainty of evidence is low for the prevalence estimates of anxiety, depression and PTSD and very low for the prevalence of acute stress, psychological distress, insomnia, and burnout.

Table H1: GRADE Summary of Findings table for the main mental health conditions

Outcome	Studies	Prevalence (CI 95%)	Certainty of Evidence (GRADE)
Anxiety moderate and severe	41 studies 52,497 participants 14 countries	0.21 (0.18 to 0.28)	⊕⊕◯◯ a,b Low
Depression moderate and severe	47 studies 56,738 participants 17 countries	0.20 (0.17 to 0.28)	⊕⊕◯◯ a,b Low
Stress moderate and severe	16 studies 19,913 participants 8 countries	0.36 (0.28 to 0.47)	⊕◯◯◯ a,,b,c Very low
Distress	14 studies 16,486 participants 6 countries	0.46 (0.32 to 0.62)	⊕◯◯◯ a,,b,c Very low
Insomnia / Sleep Disturbances	11 studies 13,086 participants 7 countries	0.36 (0.22 to 0.56)	⊕◯◯◯ a,,b,c,d Very low
Post-traumatic Stress Disorder	30 studies 46,867 participants 10 countries	0.24 (0.20 to 0.32)	⊕⊕◯◯ a,b Low
Burnout (strict definition)	16 studies 16,128 participants 10 countries	0.38 (0.26 to 0.60)	⊕◯◯◯ a,,b,d Very low
Suicidal thoughts	6 studies 14,495 participants 3 countries	0,11 (0,05 to 0,29)	⊕◯◯◯ a,,b,c,d Very low

EXPLANATIONS ON CERTAINTY:

a. One level of certainty was downgraded due to serious inconsistency of results (I^2 above 90%).
b. One level of certainty was downgraded due to the low methodological quality of most studies.
c. One level of certainty was downgraded due to indirectness (low number of countries providing data for this outcome).
d. One level of certainty was downgraded due to imprecision (confidence intervals are wide).

Source: authors' elaboration using GRADE Pro[198]

Appendix I — Results of the first round of the Delphi consultation

Table I1: Results of the first round of Delphi consultation (n=14 participants) on the relevancy of organisations to identify useful information in relation to the specific scope of this report

Country	Organisation	Most relevant		Somewhat relevant		Not relevant		TOTAL
		n	%	n	%	n	%	n
European and supranational organisations	European Agency for Safety and Health at Work	13	100,0	0	0,0	0	0,0	13
	World Health Organization	10	71,4	4	28,6	0	0,0	14
	International Labour Organization	8	57,1	6	42,9	0	0,0	14
	European Trade Union Institute	5	50,0	5	50,0	0	0,0	10
	The European Alliance for Mental Health- Employment & Work	5	45,5	5	45,5	1	9,1	11
	ECDC-European Centre for Disease Prevention and Control	5	38,5	7	53,8	1	7,7	13
	European Federation of Psychologists Associations	3	33,3	5	55,6	1	11,1	9
	Federation of European Social Employers	1	20,0	3	60,0	1	20,0	5
	European Hospital and Healthcare Employers' Association	2	18,2	8	72,7	1	9,1	11
	European Public Service Union	1	16,7	4	66,7	1	16,7	6
	European Federation for Family Employment and Home care	1	14,3	5	71,4	1	14,3	7
	European Federation for Services to Individuals	0	0,0	5	71,4	2	28,6	7
Austria	Bundesministerium für Soziales, Gesundheit, Pflege und Konsumentenschutz	1	50,0	1	50,0	0	0,0	2
	Österreichische Ärztekammer	0	0,0	1	100,0	0	0,0	1
	Österreichischer Gesundheits- und Krankenpflegeverband	0	0,0	1	100,0	0	0,0	1
	Österreichische Gesellschaft für Psychiatrie, Psychotherapie und Psychosomatik	0	0,0	1	100,0	0	0,0	1
Belgium	Research Institute for Work And Society	3	100,0	0	0,0	0	0,0	3
	Conseil National du Travail	1	100,0	0	0,0	0	0,0	1
	Belgium Association of Psychological Sciences	0	0,0	1	100,0	0	0,0	1
	Union Professionnelle des Psychologues Cliniciens Francophones et Germanophones	0	0,0	1	100,0	0	0,0	1
	Superior Health Council	0	0,0	1	100,0	0	0,0	1
Denmark	Lægeforeningen	1	100,0	0	0,0	0	0,0	1
	Dansk Psykolog Forening	1	100,0	0	0,0	0	0,0	1
	Dansk Sygeplejeråd	0	0,0	0	0,0	0	0,0	0
	Regionernes Lønnings- og Takstnævn	0	0,0	0	0,0	0	0,0	0
Estonia	Sotsiaalministeerium	0	0,0	1	100,0	0	0,0	1
	Eesti Arstide Liit	0	0,0	0	0,0	0	0,0	0
	Eesti Psühholoogide Liit	0	0,0	0	0,0	0	0,0	0
	Eesti Õdede Liit	0	0,0	0	0,0	0	0,0	0
	Eesti Vaimse Tervise Ühing	0	0,0	0	0,0	0	0,0	0
	Eesti Sotsiaaltöö Assotsiatsioon	0	0,0	0	0,0	0	0,0	0

Country	Organisation	Most relevant		Somewhat relevant		Not relevant		TOTAL
		n	%	n	%	n	%	n
	Eesti Anestesioloogia ja Intensiivravi Selts	0	0,0	0	0,0	0	0,0	0
	Eesti Perearstide Selts	0	0,0	0	0,0	0	0,0	0
Finland	Finnish Institute for Health and Welfare	3	100,0	0	0,0	0	0,0	3
	Union of Health and Social Care Professionals	3	100,0	0	0,0	0	0,0	3
	Finnish Institute of Occupational Health	3	100,0	0	0,0	0	0,0	3
	Sosiaali- ja terveysministeriö	2	100,0	0	0,0	0	0,0	2
	Sairaanhoitajat	2	100,0	0	0,0	0	0,0	2
	Supervisory Authority for Welfare and Health	2	66,7	1	33,3	0	0,0	3
	Lääkäriliitto	1	50,0	1	50,0	0	0,0	2
	Terveyskylä Pro	1	50,0	1	50,0	0	0,0	2
France	Agence nationale pour l'amélioration des conditions de travail	2	66,7	1	33,3	0	0,0	3
	Santé Mentale France	0	0,0	1	100,0	0	0,0	1
	Fédération Hospitalière de France	0	0,0	0	0,0	0	0,0	0
	Conseil National de l'Ordre des Médecins	0	0,0	0	0,0	1	100,0	1
	Ordre National des Infirmiers	0	0,0	0	0,0	1	100,0	1
	Association des Médecins Urgentistes de France	0	0,0	0	0,0	1	100,0	1
Germany	Bundesanstalt für Arbeitsschutz und Arbeitsmedizin	3	100,0	0	0,0	0	0,0	3
	Deutscher Berufsverband für Pflegeberufe	1	100,0	0	0,0	0	0,0	1
	Deutsche Gesellschaft für Psychologie	1	50,0	1	50,0	0	0,0	2
	Charité – Universitätsmedizin Berlin	1	50,0	0	0,0	1	50,0	2
	Psychosomatik und Nervenheilkunde e. V	0	0,0	2	100,0	0	0,0	2
	Bundesärztekammer	0	0,0	1	100,0	0	0,0	1
	Deutsche Gesellschaft für Psychiatrie und Psychotherapie	0	0,0	1	100,0	0	0,0	1
	PSU Akut e.V.	0	0,0	0	0,0	1	100,0	1
Ireland	Health and Safety Executive (Ireland)	2	100,0	0	0,0	0	0,0	2
	College of Psychiatrists in Ireland	0	0,0	0	0,0	0	0,0	0
	Irish Nurses and Midwives Organisation	0	0,0	0	0,0	0	0,0	0
	Irish Medical Organisation	0	0,0	0	0,0	0	0,0	0
Italy	Federazione Nazionale degli Ordini dei Medici Chirurghi e degli Odontoiatri	1	100,0	0	0,0	0	0,0	1
	Federazione Nazionale Collegi Infermieri Professionali	1	100,0	0	0,0	0	0,0	1
	Ordine dei Medici di Milano	1	100,0	0	0,0	0	0,0	1
	Società Italiana di Medicina Generale	1	100,0	0	0,0	0	0,0	1

Country	Organisation	Most relevant		Somewhat relevant		Not relevant		TOTAL
		n	%	n	%	n	%	n
	Associazione Italiana per la Sicurezza e la Salute sul Lavoro	1	50,0	1	50,0	0	0,0	2
	Associazione Italiana dei Servizi Psicologi Ospedalieri e Territoriali	0	0,0	1	100,0	0	0,0	1
Luxembourg	Ministry of Health	3	100,0	0	0,0	0	0,0	3
	Ministry of Family Affairs, Integration and the greater region	0	0,0	2	100,0	0	0,0	2
	Luxembourg Psychological Society	0	0,0	1	100,0	0	0,0	1
The Netherlands	Ministerie van Sociale Zaken en Werkgelegenheid	3	100,0	0	0,0	0	0,0	3
	Zorg voor Zorg Professionals	1	100,0	0	0,0	0	0,0	1
	Artsen Covid Collectief	1	33,3	1	33,3	1	33,3	3
	Nederlands Instituut van Psychologen	0	0,0	2	100,0	0	0,0	2
	Mind Korrelatie	0	0,0	1	50,0	1	50,0	2
Norway	Legeforeningen	0	0,0	2	100,0	0	0,0	2
	Sykepleierforbundet	0	0,0	2	100,0	0	0,0	2
	Fellesorganisasjonen	0	0,0	2	100,0	0	0,0	2
Portugal	Autoridade para as Condições do Trabalho	1	50,0	1	50,0	0	0,0	2
	Sociedade Portuguesa de Segurança e Higiene Ocupacionais	0	0,0	0	0,0	0	0,0	0
	Ordem dos Médicos	0	0,0	0	0,0	0	0,0	0
	Ordem dos Enfermeiros	0	0,0	0	0,0	0	0,0	0
Spain	Instituto Nacional de Seguridad y Salud en el Trabajo	4	100,0	0	0,0	0	0,0	4
	Ministerio de Sanidad	3	100,0	0	0,0	0	0,0	3
	Fundación Galatea	1	100,0	0	0,0	0	0,0	1
	Instituto Vasco de Seguridad y Salud Laborales	2	66,7	1	33,3	0	0,0	3
	Sociedad Española de Psiquiatría y Salud Mental	1	50,0	1	50,0	0	0,0	2
	Instituto Sindical de Trabajo, Ambiente y Salud	1	33,3	2	66,7	0	0,0	3
	Institut Valenciá de Seguritat y Salut en el treball	0	0,0	2	100,0	0	0,0	2
	Sociedad Española de Medicina de Urgencias y Emergencias	0	0,0	1	100,0	0	0,0	1
	Colegio Oficial de Psicología de la Melilla	0	0,0	0	0,0	0	0,0	0
	Fundación para la Protección Social de la OMC	0	0,0	0	0,0	0	0,0	0
Sweden	Swedish Agency for Work Environment Expertise	2	100,0	0	0,0	0	0,0	2
	Karolinska Institutet	2	100,0	0	0,0	0	0,0	2
	Swedish Association of Local Authorities and Regions	1	100,0	0	0,0	0	0,0	1
	Swedish Medical Association	0	0,0	1	100,0	0	0,0	1
	Swedish Society of Medicine	0	0,0	1	100,0	0	0,0	1
	Swedish Society of Anaesthesia and Intensive Care	0	0,0	0	0,0	1	100,0	1

Country	Organisation	Most relevant		Somewhat relevant		Not relevant		TOTAL
		n	%	n	%	n	%	n
Switzerland	Schweizerische Unfallversicherungsanstalt (SUVA)	1	100,0	0	0,0	0	0,0	1
	Schweizerischen Stiftung Intensivmedizin	0	0,0	0	0,0	0	0,0	0
	Foederatio Medicorum Helveticorum (FMH)	0	0,0	0	0,0	0	0,0	0
United kingdom	NHS - National Health Service	3	100,0	0	0,0	0	0,0	3
	HSE - Health and Safety Executive	3	100,0	0	0,0	0	0,0	3
	COVID Trauma Response Group	2	100,0	0	0,0	0	0,0	2
	Association of Mental Health Providers	1	100,0	0	0,0	0	0,0	1
	Support the workers	1	100,0	0	0,0	0	0,0	1
	British Medical Association	2	66,7	1	33,3	0	0,0	3
	Royal College of Nursing	1	50,0	1	50,0	0	0,0	2
	The British Psychological Society	1	50,0	1	50,0	0	0,0	2
	City Mental Health Alliance https://citymha.org.uk/	1	50,0	1	50,0	0	0,0	2
	Royal College of Psychiatrists	0	0,0	2	100,0	0	0,0	2
	Academy of Medical Royal Colleges	0	0,0	1	100,0	0	0,0	1
Other non-EU countries	Mental Health Commission of Canada	1	100,0	0	0,0	0	0,0	1
	Centre for Addiction and Mental Health	1	100,0	0	0,0	0	0,0	1
	American Medical Association	2	66,7	1	33,3	0	0,0	3
	American Psychiatrist Association	1	33,3	2	66,7	0	0,0	3
	Mount Sinai	0	0,0	1	100,0	0	0,0	1
	The Schwartz Center	0	0,0	0	0,0	0	0,0	0

Source: authors' elaboration

Appendix J — Additional sources of information identified in the Delphi consultation

Table J1: Additional sources of information identified by participants in the first and second rounds of the Delphi consultation

Country	Other organisations
European and supranational organisations	Federation of European Social Employers. Burnout Free (Greece, Portugal, Cyprus, Romania, Bulgaria, Croatia, Belgium and Albania). European Foundation for the Improvement of Living and Working Conditions (EUROFOUND). International Commission on Occupational Health (ICOH). European Academy of Occupational Health Psychology. Partnership for European Research in Occupational Safety and Health (PEROSH).
Austria	Sozialwirtschaft österreich. Arbeiterkammer Österreich. AUVA (Allgemeine Unfallversicherungsanstalt - the Austrian Workers' Compensation Board.
Belgium	IDEWE.
Denmark	The National Research Centre for the Working Environment (NFA).
Finland	MIELI (Mental Health Finland). The Mental Health Toolkit. The Finnish Association of Private Care providers. The Finnish Psychological Association. Mentalhub.
France	Reference body for occupational risk prevention in France. Fédération Force Ouvrière de personnels des Services Publics et des Services Publics et des Services de Santé.
Germany	Institute for Occupational Safety and Health of the German Social Accident Insurance (IFA).
Ireland	The Psychological Society of Ireland. Services Industrial Professional and Technical Union - Health Division (SIPTU - Health).
Italy	Società Italiana di Medicina del Lavoro. Società Italiana di Ergonomia.
The Netherlands	ActiZ
Norway	NHO, The Confederation of Norwegian Enterprises. KS, The Association of Local and Regional Authorities. Virke, The Federation of Norwegian Enterprises. STAMI – The National Institute of Occupational Health in Norway. Unio, The Confederation of Unions for Professionals. Akademikerne, The Federation of Norwegian Professional Association. LO, Landsorganisasjonen i Norge. Spekter, The Employers Association. YS, The Confederation of Vocational Units.

Spain	Colegio Oficial de la Psicología de Madrid.
	LARES
	FUNDAMED
	Confederación Salud Mental.
	Fundación Galatea.
	Societat Catalana de Mediació en Salut.
Sweden	Institute of psychology, University of Stockholm.
Switzerland	Unisanté, Centre universitaire de médecine générale et santé publique.
United Kingdom	The National Care Forum.
	GMB Union.
	Society of Occupational Medicine.

Source: authors' elaboration

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