



Swedish Agency for Work  
Environment Expertise

# Interventions for achieving good psychosocial health in the healthcare sector

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# Foreword

This systematic literature review is part of the agency's reporting on its government assigned task to "collect and compile knowledge about work environment risks and health-promoting factors among healthcare professionals" (Ref. No. S2021/06572 (in part)). In the healthcare sector, different occupational categories work in a variety of contexts and with varying levels of exposure to both work environment risks and health-promoting factors, which have a significant impact on the health and well-being of professionals in this field. Ongoing and increasing demographic changes in Swedish society pose major challenges to the healthcare sector, not least with regard to higher demands in terms of skills supply, the employees' work environment, and their skills development.

One of the cornerstones of a healthy and sustainable working life is a good psychosocial work environment in which there is meaningful and safe interplay between the social work environment and the individual. How can the psychosocial work environment be influenced? What kind of interventions, efforts, measures and programmes can be used to create healthy workplaces, and what effects can such interventions have? In this systematic literature review, researchers have conducted a systematic literature review to increase knowledge about the effects of interventions aimed at achieving a better psychosocial work environment. This systematic literature review is primarily based on what previous reviews in this field have presented regarding interventions and their results. Its aim is to paint a picture of the current state of affairs in the healthcare sector and to help increase knowledge of work environment issues among healthcare professionals, as part of the fulfilment of our government task.

The co-authors of this systematic literature review are Per Nilsen, Professor of Public Health at Linköping University (with a focus on Implementation Science); Hanna Fernemark, Resident Physician in Primary Healthcare, Region Östergötland; Ida Seing, Doctor of Philosophy in Medical Science at Linköping University, and Janna Skagerström, Doctor of Medicine in Public Health, Region Östergötland.

Fredrik Bååthe, M.D. has reviewed the quality of the systematic literature review on behalf of the agency. The responsible process manager at the Swedish Agency for Work Environment Expertise has been Thomas Nessen, Ph.D.

The authors of this systematic literature review have chosen their own theoretical and methodological starting points and are responsible for the findings and conclusions presented in this systematic literature review.

I would like to extend my sincere thanks to our external researchers and quality reviewers, as well as to the agency employees who contributed to the production of this valuable document. The systematic literature review is published on the agency's website and in the "Systematic literature reviews" series.

Gävle, January 2023



Nader Ahmadi, Director-General

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# Summary

The Swedish Government has tasked the Swedish Agency for Work Environment Expertise to collect and compile knowledge about factors of importance to the creation of healthy and prosperous workplaces in the healthcare sector. A compilation of the various interventions and their effects makes it possible to gain knowledge about how healthy and prosperous workplaces can be created in this sector. In this report, interventions are defined as “conscious efforts to bring about the desired change”. Interventions may also be referred to as “actions, efforts, measures or programmes”.

This report compiles research in the form of literature reviews on workplace interventions that aim to achieve a better psychosocial work environment for healthcare professionals. The report comprises a total of 35 reviews. The interventions examined in these reviews have been divided into individual-level interventions and organisational-level interventions. The populations examined vary and have been divided into three categories: registered nurses (nine reviews), physicians (eight reviews), and various healthcare professionals (18 reviews).

In addition to the findings of these reviews, the report also presents the findings of six original Swedish studies included in the reviews. Also, the findings of three original Swedish studies that were not included in the reviews are presented, as well as a report from the grey literature that was identified during an additional search of databases and online resources.

## **Individual-level interventions**

Individual-level interventions were presented in 31 reviews. Individuals are the main focus of these interventions, which primarily aim to promote health and well-being, but also to achieve increased job satisfaction and improved work performance.

Common individual-level interventions included:

- Mindfulness
- Stress management courses
- Relaxation exercises
- Coping strategies
- Cognitive-behavioural therapy

Various forms of mental and psychological exercises, often done in groups, were common. According to several reviews, these interventions produced some positive results for employees’ health and well-being, including reduced stress levels, increased empathy, better self-understanding and understanding others, and greater satisfaction with the workplace. However, many studies

included in the reviews lack comparison groups, and the number of participants was often low. Several reviews also pointed out that short follow-up periods make it difficult to draw conclusions about the long-term effects of the interventions.

### **Organisational-level interventions**

Eight reviews discussed organisational-level interventions. These interventions focused on the organisational and social aspects of the work environment. They had similar goals to the individual-level interventions, and most of them primarily aimed to improve health and well-being.

Organisational-level interventions included:

- Modified working hours and schedules
- Reduced workload
- Improved teamwork and communication

The results of the reviews included lower levels of perceived burnout, improved job satisfaction and reduced stress levels. However, the authors of the reviews were generally cautious in their conclusions, due to methodological shortcomings in the primary studies included in the reviews. Moreover, several reviews contained relatively few organisational-level interventions, which also makes it more difficult to draw conclusions about the effects.

### **Conclusions**

The findings show that both individual-level interventions and organisational-level interventions can promote the health and well-being of healthcare professionals. In general, the effects of both individual-level and organisational-level interventions were negligible. The main outcome in the reviews was the effects of the interventions on the health and well-being of healthcare professionals. Many authors of these reviews emphasise the need for more well-structured studies.

Other types of outcomes, such as consequences at the collective level (e.g., sickness absence and staff turnover) and implications for patients (e.g., patient satisfaction and frequency of adverse events) were more rarely addressed in the included reviews. Here, too, more knowledge is needed about which interventions may prove effective.





# Table of contents

Summary .....	6
1. Introduction .....	10
2. Key concepts .....	12
3. A model for the psychosocial work environment in the healthcare sector.....	14
4. What do we know about the psychosocial work environment in the healthcare sector? .....	15
Psychosocial work environment (A): risk factors.....	15
Psychosocial work environment (A): health-promoting factors .....	16
Effects on individuals' health and well-being (B).....	16
Work-related consequences at the individual level (C) .....	17
Consequences at the collective level (D) .....	17
Implications for patients (E) .....	17
5. Method .....	18
Search strategies and restrictions .....	18
Additional restrictions .....	19
Literature searches.....	20
Selection, relevance assessment, and quality assessment.....	21
6. Results.....	23
Facts about the reviews .....	23
Populations in the reviews .....	23
Interventions in the reviews .....	24
Individual-level interventions .....	24
Organisational-level interventions .....	25
Other interventions.....	26
Categorisation of the interventions.....	26
Outcomes in the reviews.....	27
Results of the individual-level interventions in the reviews .....	29
Interventions targeting physicians.....	29
Interventions targeting registered nurses.....	31
Interventions targeting various healthcare professionals .....	32
Results of the organisational-level interventions in the reviews .....	33
Interventions targeting physicians.....	34
Interventions targeting registered nurses.....	35
Interventions targeting various healthcare professionals .....	35
Results of the other interventions in the reviews .....	36
The findings of the reviews of Swedish interventions.....	37
Results from other original Swedish studies and reports.....	39
7. Discussion .....	42
Summary of the main findings .....	42
Need for knowledge.....	44
Methodology discussion .....	45
Recommendations .....	46
Conclusions .....	47
8. References .....	48

## Appendix

Appendix 1 Search protocol

Appendix 2 Searches for Swedish studies

Appendix 3 Searches of the grey literature

The appendices are available for download on the agency's website, sawee.se.

# 1. Introduction

The Swedish Government has tasked the Swedish Agency for Work Environment Expertise to collect and compile knowledge about factors of importance to the creation of healthy and prosperous workplaces in the healthcare sector. A systematic literature review of the various interventions and their effects makes it possible to gain knowledge about how healthy and prosperous workplaces can be created in this sector.

In this report, interventions are defined as “conscious efforts to bring about the desired change”. Interventions may also be referred to as “actions, efforts, measures or programmes”.

This report presents a systematic literature review in order to compile knowledge about the effects of workplace interventions that aim to achieve a better psychosocial work environment in the healthcare sector (the concept of psychosocial work environment is explained in Section 2). A summary has been made of the effects of these interventions. This systematic literature review is based on an analysis of previous systematic reviews (hereinafter, the term “reviews” is used for the sake of brevity). This type of study is considered to be an effective way to summarise and get an overview of the state of knowledge in a particular area or with regard to a specific research question.

This systematic literature review is based on reviews that have been judged to be well executed and relevant to the following questions:

- Which reviews have examined workplace-based interventions to improve the psychosocial work environment in the healthcare sector? Presented in Sections 6.1–6.4 and Appendix.
- What are the results of these interventions, according to these reviews? Presented in Sections 6.5 to 6.7.

Interest is also directed at original Swedish studies covered in the included reviews or identified in extra searches with a focus on the Swedish context:

- What results are reported in Swedish studies that have examined workplace-based interventions to improve the psychosocial work environment in the healthcare sector? Presented in Sections 6.8.
- In a Swedish context, what results are reported in other studies and reports that have examined workplace-based interventions to improve the psychosocial work environment in the healthcare sector? Presented in Sections 6.9.

This systematic literature review begins with an overview of key concepts. Thereafter, a model is presented that illustrates the relationship between the psychosocial work environment and the various effects and consequences

that this work environment can have. The model is the starting point for a summary of research findings regarding the psychosocial work environment in the healthcare sector. This is followed by a methodology section that describes the approach applied to the investigation of various interventions aimed at improving the psychosocial work environment of healthcare professionals. Thereafter, the results are presented in relation to the research questions. The systematic literature review ends with a discussion of the findings.

## 2. Key concepts

The systematic literature review focuses on workplace-based interventions that aim to reduce psychosocial work environment problems among healthcare professionals. The aim of these interventions is to improve health and well-being and prevent undesirable consequences, such as a low level of job satisfaction or inadequate patient safety. In this context, it is important to clarify a number of concepts, including “psychosocial work environment”, “risk and health-promoting factors” (as regards the psychosocial work environment), and workplace-based interventions.

The term **psychosocial** is used to describe an approach in which individuals are understood from both a psychological and a social perspective. The word “psychosocial” is used to describe the interplay between people’s social environment and how they react to it. Psychosocial factors thus refer to the individual in relation to their social context.

The interplay between the social work environment and the individual creates what is known as **the psychosocial work environment**. The psychosocial work environment is the environment in which the individual works and performs their duties. This concept is usually interpreted broadly; this means that the psychosocial work environment includes aspects relating to our mental health in the workplace, such as job satisfaction and colleagues, how meaningful we perceive our work to be, our influence over our work situation, and opportunities for personal development (1).

Different **risk and health-promoting factors** are important for the psychosocial work environment in different workplaces and different business activities, including the healthcare sector. Risk factors are conditions that increase the risk of developing ill health, while health-promoting factors (also called “protective factors”) are conditions that promote health. For example, among healthcare professionals, one risk factor for ill health might be a high workload, while a health-promoting factor is the support they receive from management and colleagues. Models such as Job Demand Control Support (2) and Effort-Reward Imbalance (3) describe the negative effects on health and well-being as a result of an unfavourable balance between the various risk and health-promoting factors in an organisation. The systematic literature review focuses on interventions that ultimately aim to reduce the impact of risk factors and/or enhance the impact of health-promoting factors.

**Interventions** are conscious efforts to change a predictable course and/or undesirable condition (4). The term can be understood by looking to its Latin origin; *inter* means “between” and *venire* “come”, i.e., an intervention is something that “comes between” and changes a course of events. Interventions are also referred to as actions, efforts, measures or programmes. Intervention

studies can be carried out as experiments in which the researcher manipulates or influences the subject of the study, such as a management training programme in a region's primary care services.

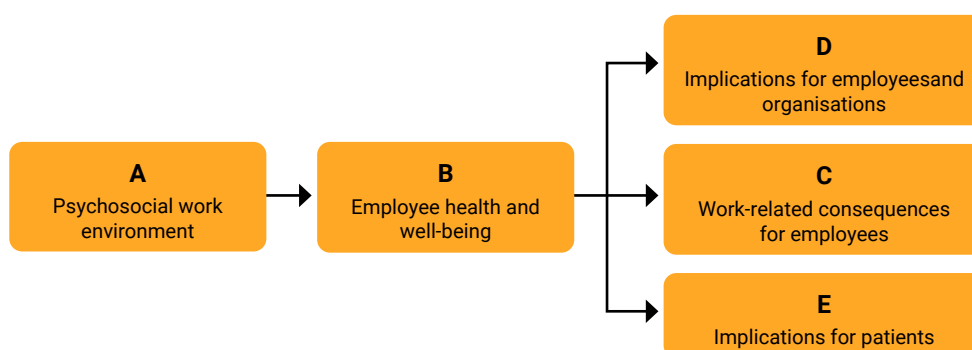
Such studies strive for intrinsic validity, i.e., the ability to conclude that the intervention (the independent variable) caused the changes that occurred (dependent variables).

Psychosocial work environment interventions aim to influence the psychosocial work environment, i.e., various risk and health-promoting factors. This systematic literature review focuses on workplace-related interventions, i.e., interventions that have been implemented at or in close proximity to the workplace.

The intervention in question must have been initiated by or involved employers. Research on interventions via occupational health services has only been included if the study was deemed to constitute an intervention according to this definition.

### 3. A model for the psychosocial work environment in the healthcare sector

Figure 1 illustrates the relationship between the psychosocial work environment (A) and its effects on individuals' health and well-being (B); as well as the work-related consequences for these individuals (C); consequences at the collective level, i.e., for employees and the organisation as a whole (D), and implications for patients (E). The model has been used to create a structure for reporting the different outcomes described in the various reviews.



**Figure 1:** Model describing the relationship between the psychosocial work environment and employees, the organisation, and patients

The figure illustrates that aspects of the psychosocial work environment (A), such as high workload, limited decision latitude, or a lack of good support at work, can affect individuals' health and well-being (B), for example, in the form of exhaustion and altered quality of life which, in turn, can give rise to various consequences in terms of job satisfaction (C), organisational climate and productivity (D), and the quality of patient care (E).

The relationships between the model's components have primarily been examined in cross-sectional studies. This excludes the possibility of establishing causal relationships. The arrows in the figure indicate the presumed causal relationships that are usually described in working life research. Reviews that examine risk and/or health-promoting factors (A), effects on health and well-being (B), and work-related consequences (C) generally focus on the individual level. Consequently, they fail to capture the model's two "collective" components (D, E).

What is examined in this systematic literature review are workplace-related interventions that aim to promote health and well-being among employees and reduce or eliminate deficiencies in the psychosocial work environment of the healthcare sector (A), so that negative effects (B) and undesirable consequences (C, D, E) can be avoided and positive effects can be maximised.

## 4. What do we know about the psychosocial work environment in the healthcare sector?

The purpose of this section is to summarise research on the psychosocial work environment in the healthcare sector. This research encompasses a range of diverse yet partially overlapping concepts. Furthermore, many different instruments and methods are used to study the work environment. This makes it difficult to summarise important findings in this research beyond a relatively general level. Anyone interested in delving deeper into a particular aspect is advised to read the individual reviews and/or the specific original studies.

### Psychosocial work environment (A): risk factors

Research has identified many shortcomings in the healthcare sector's psychosocial work environment. To some extent, the same issues arise as in other business activities and sectors, but there are also issues that seem to particularly impact this environment (5–7). The following risks are frequently mentioned in studies of the psychosocial work environment in the healthcare sector:

- High workload
- Time constraints
- Limited decision latitude/autonomy
- Work-life conflict
- Role conflict between patient-related and administrative work
- High demands imposed by the individual on themselves, as well as those of management, colleagues and patients
- Moral stress (feeling unable to act in a way that is perceived as morally right)
- Poor working climate
- Lack of social support from management and colleagues

The risk factors described above should not be considered in isolation. Rather, these many different risk factors are interdependent. For example, it is obvious that the work climate is affected by the level of social support that employees feel they receive. Similarly, for a care clinician, administrative work (what some studies describe as “illegitimate work”) can result in a higher workload, and this workload simultaneously reinforces the role conflict between patient-related and administrative work (8–10).

## **Psychosocial work environment (A): health-promoting factors**

Health-promoting factors, also referred to as “protective factors”, are conditions that positively affect the psychosocial work environment. This allows work-related stress to be avoided, thereby benefiting employees’ health and well-being. Health-promoting factors have not been studied to the same extent as risk factors (11). In other words, relatively little is known about how these factors correlate with the various effects and consequences. To confirm there are causal relationships between health-promoting or risk factors on the one hand, and various outcomes on the other, intervention studies are needed. Most health-promoting factors are “mirror images” of risk factors.

Findings regarding health-promoting factors can be summarised as follows (12):

- Moderate workload
- Sufficient time
- Decision latitude/autonomy
- Moderate demands imposed by the individual on themselves, as well as those of management, colleagues and patients
- Good work content (variety, stimulation, meaningfulness, clarity, etc.)
- Recognition of own work and accomplishments
- Positive working climate
- Social support from management and colleagues

In the same way as risk factors, the different health-promoting factors are interdependent and affect each other (2, 13). Thus, social support from management and colleagues, as well as recognition of good work performance, is likely an important factor in the creation of a work environment that employees perceive as positive.

## **Effects on individuals’ health and well-being (B)**

Research on the psychosocial work environment in the healthcare sector has linked many of the above-mentioned factors to employee health and well-being. Many overlapping concepts and different measuring instruments are used in this research, but the findings can be generalised and summarised in the form of five recurring types of negative effects:

- Work-related stress
- Burnout
- Depression
- Suicidal ideation
- Poor quality of life



According to a generally accepted definition provided by Maslach et al., burnout has three components: (14): emotional exhaustion, a sense of unreality and self-alienation, and feelings of emotional exhaustion, depersonalisation and reduced personal accomplishment.

### **Work-related consequences at the individual level (C)**

Many cross-sectional studies have identified links between the psychosocial work environment, its effects on employees' health and well-being, and its work-related consequences. The following symptoms are common consequences that have been identified in research on the psychosocial work environment in the healthcare sector (15–18):

- Turnover intentions (increased intention to quit work)
- Early termination of employment
- Decreased job satisfaction
- Reduced engagement at work
- Diminished work performance
- Increased sickness absence

### **Consequences at the collective level (D)**

Consequences have also been studied and identified at various collective levels, although this research is considerably less extensive than research with an individual focus. Recurrent consequences that have emerged in cross-sectional research on the psychosocial work environment in the healthcare sector (19, 20):

- Poorer teamwork
- Deterioration of the working climate
- Increased costs for the enterprise
- Reduced productivity

### **Implications for patients (E)**

Finally, the effects of the psychosocial work environment on employees' health and well-being can have implications for patients. Research based on cross-sectional studies has identified three main implications (17):

- Deterioration in the quality of care
- Reduced patient satisfaction
- Lower levels of patient satisfaction

## 5. Method

This systematic literature review is based on systematic searches for systematic literature reviews (referred to here simply as “reviews”). These reviews compile original studies focused on workplace interventions that aim to achieve a better psychosocial work environment for healthcare professionals. By summarising information from numerous review articles, an overview of the research in the field is obtained.

In addition to international literature reviews, searches restricted to a Swedish context were conducted in order to identify original studies, dissertations and grey literature that present the results from interventions aimed at achieving an improved psychosocial work environment in the healthcare sector in Sweden. The database searches were supplemented with searches for relevant publications on the websites of organisations and authorities (Afa Insurance, the Swedish Work Environment Authority, the Swedish Trade Union Confederation (LO), the Swedish Agency for Health Technology Assessment (SBU), and the Swedish Medical Association). A wide range of searches on the subject of occupational safety and health were conducted on these websites.

### Search strategies and restrictions

The applied search strategies were designed in consultation with an information specialist. Information searches were based on a so-called PICO structure (population-intervention-control-outcome):

- The **population** comprises healthcare employees.
- The **interventions** are workplace based and focus on the psychosocial work environment in the healthcare sector. The interventions may be aimed at individuals, groups, managers or the entire organisation.
- To be able to comment on the effectiveness of an intervention, at least one **control group** is usually required. Since the searches here were implemented with the help of specific search strategies and are limited to reviews based on original studies, there is no need for a control group in the reviews. Likewise, the searches focusing on the Swedish context did not include a control group in the search strategy.
- The **outcomes** in the included reviews are one or more of the components we describe in the ABCDE model, i.e., outcomes in the form of impact on individuals’ health and well-being (B); work-related consequences for these individuals (C); consequences at the collective level, i.e., for employees and the organisation as a whole (D), and implications for patients (E).

The healthcare sector and its employees have been broadly defined. This means that health and social care provided by municipalities and their

equivalents in other countries are also included. All categories of employees are included, regardless of whether they are licenced health professionals or non-licenced staff.

## Additional restrictions

In the screening and relevance assessment, additional restriction criteria have been established. For studies in an international context, studies that fall into the categories of systematic literature reviews and Health Technology Assessment reports (written in English, Swedish, Norwegian or Danish) have been used to analyse quantitative data on workplace interventions (i.e., the intervention has been carried out at or in close proximity to the workplace).

The following reviews have been excluded:

- Reviews that do not study a population that is active in the healthcare sector.
- Reviews that only examine the effect of rehabilitation, with the primary aim of improving the health and/or stimulating the return to work of the participants.
- Reviews in which the population only comprises people with a specific health condition, such as cancer, HIV, or a brain injury.
- Reviews that examine the effects of occupational health care, unless this is couched within the framework of an otherwise defined workplace intervention aimed at influencing the psychosocial work environment.
- Reviews of interventions initiated by individuals or external actors (e.g., occupational health services or insurance companies), i.e., interventions that cannot be characterised as workplace interventions.
- Reviews of the effects of leadership and/or organisational changes.
- Reviews that only examine the effect of interventions on the following outcomes: surrogate endpoints such as biological or immunological markers; drug use; eating habits; drinking habits; drug habits; occupational diseases; violence and crime, or safety or equivalent aspects.
- Reviews in which the research question only relates to the implementation or feasibility of interventions.
- Reviews in which the majority of the studies (and/or populations) hail from non-western countries, as they are likely to be less relevant to Swedish and western conditions.
- Reviews that limit their search to studies from only one country or region.

For studies and reports (in the form of original studies, dissertations and grey literature) in a Swedish context, the following literature has been excluded:

- Studies/reports that do not concern a population that is active in the healthcare sector.

- Studies/reports that only examine the effect of rehabilitation, with the primary aim of improving the health and/or stimulating the return to work of the participants.
- Studies/reports in which the population only comprises people with a specific health condition, such as cancer, HIV, or a brain injury.
- Studies/reports that examine the effects of occupational health care, unless this is couched within the framework of an otherwise defined workplace intervention aimed at influencing the psychosocial work environment.
- Studies/reports of interventions initiated by individuals or external actors (e.g., occupational health services or insurance companies), i.e., interventions that cannot be characterised as workplace interventions.
- Studies/reports that describe the effects of leadership and/or organisational changes.
- Studies/reports that only examine the effect of interventions on the following outcomes: surrogate endpoints such as biological or immunological markers; drug use; eating habits; drinking habits; drug habits; occupational diseases; violence and crime, or safety or equivalent aspects.
- Studies/reports in which the research question only relates to the implementation or feasibility of interventions.

## Literature searches

The literature searches have been conducted in the Pubmed, PsycINFO, and Cinahl databases. For international studies, no time limits have been applied. An initial search for international studies was made on 11 June 2019. This search was originally made for one of the Swedish Agency for Work Environment Expertise's systematic literature reviews, "*Psykosocial arbetsmiljö – hälsa och välbefinnande*" ["Psychosocial Work environment – Health and Well-Being"] (Systematic literature review 2020:5). Studies related to the healthcare sector were identified and selected. A second search was carried out on 21 January 2022 aimed at finding references that had been added since 2019. This search was based on the same search terms as the 2019 search, but was restricted to the healthcare sector.

The search for Swedish studies and reports was conducted on 18 October 2022. The search was limited in time, from 2013 to 2022. A decade was considered to be an appropriate delimitation to avoid excessively outdated studies. For original Swedish studies, the search was restricted to studies published in 2022.

For further information about the searches and search protocols, see the appendices.

## Selection, relevance assessment, and quality assessment

The titles and abstracts of the references identified in the literature search were reviewed by all members of the research team (four people). If the team decided that a text should be read in full, a copy was ordered and read by the group. References for which the various members made different assessments were read by everyone in the group, whereupon consensus was reached as to whether or not to include the review.

Independently of each other, we then assessed the relevance of the full-text articles, based on the project's research questions, limitations and criteria for inclusion and exclusion. Disagreements were always resolved through discussions among the entire research team.

The quality of the reviews was assessed with support from the issues described in the adapted version of the AMSTAR review template used by the Swedish Agency for Health Technology Assessment (SBU) (21).

In the assessment of quality, emphasis was placed on the following aspects:

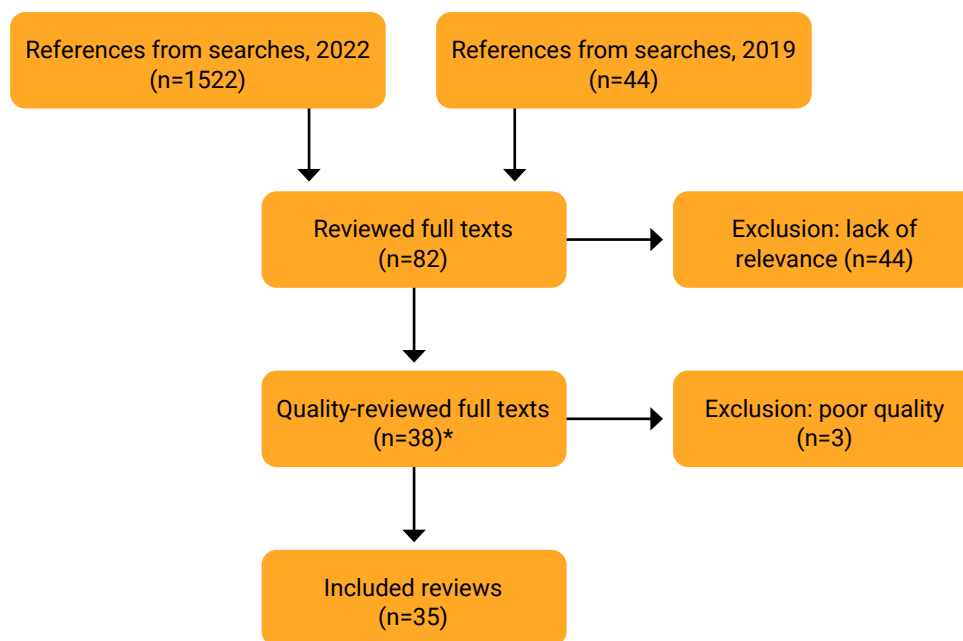
- The review had to have a clearly presented research question that was relevant to the research question of the systematic literature review.
- The review had to have a predetermined and reported method: a literature search that was assessed as adequate (e.g., searches in at least two databases, several relevant keywords and concepts, a documented search strategy).
- The review had to show that the screening and culling of titles and summaries had been carried out by at least two people working independently of each other, and that at least two people had assessed the relevance and quality of each review and assisted in the data extraction.
- The authors of the review had to have somehow evaluated, documented and assessed the scientific quality of the studies they included, and needed to have taken this information into account when formulating their conclusions.

If the above criteria were met, a review was assessed to be of at least moderate quality.

Additional aspects were taken into account: 1) whether the review presented the characteristics and results of the included studies; 2) whether it used appropriate methods for weighting the results; 3) whether it assessed the risk of publication bias, and 4) whether it considered any conflicts of interest. If all of these criteria were met, the review was assessed to be of high quality. Reviews of high or moderate quality have been included in this systematic literature review and constitute its basis.

Original Swedish studies included in any of the compiled reviews are presented in this report. In addition, Swedish studies and reports from the search are presented in a Swedish context. These publications have not been quality assessed because unlike the other studies included in the report, they are not review studies.

Figure 2 presents a flowchart of the systematic literature review's selection and review process.



**Figure 2:** Flowchart. The asterisk (\*) refers to 18 reviews from the 2019 search that had already been quality reviewed.

The database search that was restricted to the Swedish context identified 84 references to original articles. In addition, 56 dissertations and 20 reports were identified in Swepub when English search terms were used, as well as 27 dissertations and 96 reports when Swedish search terms were used. Searches on webpages generated an additional 78 hits. Following the review of abstracts and then full texts, two intervention studies were included, along with one dissertation and one report from the grey literature describing intervention studies.

## 6. Results

The presentation of the results of the report begins with a section describing the “basic facts” of the identified reviews. The report continues with sections that describe and categorise the populations, interventions and outcomes of the reviews. This is followed by sections on results regarding the effects of the interventions: individual-level interventions and organisational-level interventions described in the reviews, as well as Swedish interventions reported in original studies (included in the reviews). Finally, there is a section that presents summaries of the studies that were identified in searches in the Swedish context and that are not included in the literature reviews.

### Facts about the reviews

The literature searches and subsequent selection and relevance assessments led to the identification of 35 reviews (18 reviews in the search up to June 2019 and 17 reviews in the search for the period thereafter, up to January 2022).

### Populations in the reviews

All reviews were based on healthcare workplaces. Based on the identified and included reviews, the studies were divided into three categories, depending on the population studied:

- 1) Registered nurses
- 2) Physicians
- 3) Various healthcare professionals

Category 3 reviews examine mixed study populations, with participants from various healthcare professions. Table 1 shows which study populations were examined in the 35 included reviews.

**Table 1:** Study population in the included reviews.

Category	Number of reviews	Reviews (and comments)
Registered nurses	9 reviews	Registered nurses in general, unless otherwise stated in parentheses. Chen & Lou (30) (newly registered nurses); Zhang et al. (31) (recent nursing school graduates); Lee et al. (42); Guillaumi et al. (40); Häggman-Laitila & Romppanen (43) (registered nurses in management positions); Niskala et al. (45); Paguio et al. (35) (registered nurses working in hospitals); Stanulewicz et al. (44); Jung et al. (41) (registered nurses working in hospitals).
Physicians	8 reviews	Physicians in general, unless otherwise stated in parentheses. Murray et al. (25) (general practitioners); West et al. (28); Clough et al. (24); Fox et al. (37); DeChant et al. (27); Petrie et al. (39); Venegas et al. (38); Scheepers et al. (36).
Various health and medical care professionals	18 reviews	Any clarifications are provided in parentheses. Ruotsalainen et al. (22); Buchberger et al. (23); Ruotsalainen et al. (34); Hill et al. (53) (palliative care staff in hospices, hospitals and community settings); Brand et al. (29) (hospital and community healthcare staff); Gilmartin et al. (47) (hospital staff); Lamothe et al. (46); Panagioti et al. (57) (70% physicians); Williams et al. (32); Lomas et al. (48); Spinelli et al. (49); Melnyk et al. (50) (physicians and registered nurses); Imbulana et al. (55) (intensive care personnel); Kletter et al. (54); Kriakous et al. (52); Morley et al. (33); Salvado et al. (51) (primary care staff); Stuber et al. (56).

Table 1 shows that just over half (n=18) of the identified reviews had a broad focus on healthcare professionals, regardless of the environment in which they work. Nine reviews focused on registered nurses, while eight focused on physicians.

## Interventions in the reviews

The workplace-based interventions for achieving improved psychosocial work environment in the health and medical care sector described in the included reviews can be roughly divided into individual-level and organisational-level interventions. Other included interventions cannot be easily classified as individual or organisational-level interventions, and have therefore been assigned to the “Other” category.

### Individual-level interventions

Individual-level interventions are also referred to as “person-directed interventions” (22), but many other terms are used, including “psychological health interventions” (23), “psychosocial interventions” (24), and “cognitive-behavioural interventions” (25).



Common to the vast majority of individual-level interventions is that they primarily aim to promote employees' mental health and well-being through various types of training, for example, in mindfulness as a tool for managing work-related stress. Interventions aimed at physical health, such as physical exercise regimes and dietary advice, may also occur. Individual-level interventions are usually conducted in groups. It is noteworthy, however, that many descriptions of individual-level interventions do not define the actual meaning of the term; instead, they offer various examples of this type of intervention.

### **Organisational-level interventions**

Correspondingly, organisational-level interventions are ascribed various names, but "organisation-directed interventions" (26, 27) and "organisational interventions" (22) appear to be the most common terms. There is no uniform description of the content of organisational-level interventions. In most reviews, this type of intervention is defined using exemplifications. However, these descriptions share certain common traits. They all concern interventions that focus on the work situation and/or the organisation, with the aim of reducing work-related stress and improving employees' health and well-being. If individual-level interventions can be said to seek to change employees themselves, organisational-level interventions strive to change their work-related conditions.

Ruotsalainen et al. (22) describe organisational-level interventions as being "focused on organisational or social environments", as exemplified by "organisational restructuring, training, and altered job design". West et al. (28) argue that such interventions consist of "changes to shift times, various modifications to clinical work processes, and shorter shifts". Panagioti et al. (26) posit that this type of intervention may include "simple alterations of work schedules and reduction of workload", as well as "more ambitious changes to processes and entire healthcare organisations". Here they offer the examples of "improved teamwork, changes in job evaluations, monitoring to reduce the demands of work and increase control over work, and increasing the level of influence in decision-making".

Instead of organisational-level interventions, Brand et al. (29) apply the concept of "whole-system approaches", by which they mean interventions aimed at all staff in a healthcare setting. Ruotsalainen et al. (22) use the term "person-work interface interventions" for interventions that aim to improve the alignment between the person and the organisation (e.g., role conflicts/ambiguity, relationships, employee engagement in decision-making)".

DeChant et al. (27) divide organisational-level interventions into four categories:

- **Teamwork:** for example, initiatives to increase team accountability or improve communication between co-workers

- Time: Initiatives to change work schedules, working hours, and the like
- Transitions: Initiatives to alter work processes and implement policy changes
- Technology: Implementation or improvement of electronic health records

### **Other interventions**

It was deemed necessary to create an “Other” category to capture workplace-related interventions that are neither distinctly individual nor organisational in nature. Mentorship programmes, which appeared in two reviews (30, 31), are one example of such interventions. These interventions certainly focus on the individual, but they do not primarily aim to improve stress management or promote health and well-being (i.e., Component B of the model in Figure 1), although such effects may be achieved. Rather, the aim is to achieve favourable outcomes related to the workplace (Component C of the model in Figure 1), including increased job satisfaction and non-termination of employment (30).

The “Other” category also includes so-called multimodal interventions (32), also referred to as “multicomponent interventions” (22) and “bundles of interventions” (33). These entail several different interventions that are carried out in parallel.

### **Categorisation of the interventions**

With the guidance of the above, workplace-based interventions intended to promote a good psychosocial work environment in the healthcare sector have been categorised as follows:

- Individual-level interventions. These aim to improve employees’ ability to handle work-related stress and other consequences of deficiencies in the psychosocial work environment through various forms of training, thus promoting health and well-being among the employees who participate in such training.
- Organisational-level interventions. These aim to change employees’ work situation and/or the organisation as such, in order to reduce work-related stress and thereby promote the health and well-being of all affected employees.
- Other interventions. These include multimodal interventions (comprising two or more simultaneous interventions) and interventions that are difficult to describe as individual or organisational.

Table 2 compiles information on the types of interventions that were the focus of the included reviews. The total number of interventions exceeds 35, as several reviews included more than one type of intervention.

**Table 2:** Interventions in the included reviews.

Category	Number	Reviews
Individual-level interventions	31 reviews	With the exception of four reviews: Chen & Lou (30); Zhang et al. (31); Brand et al. (29); DeChant et al. (27).
Organisational-level interventions	8 reviews	Ruotsalainen et al. (22); Ruotsalainen et al. (34); West et al. (28); Brand et al. (29); Panagioti et al. (26); Williams et al. (32); De-Chant et al. (27); Paguio et al. (35)
Other interventions	6 reviews	Ruotsalainen et al. (22); Chen & Lou (30); Ruotsalainen et al. (34); Zhang et al. (31); Williams et al. (32); Morley et al. (33).

Table 2 points to a preponderance of reviews that examined individual-level interventions (n=31). All but four reviews covered individual-level interventions in the workplace. Two of the exceptions were reviews (30, 31) that examined mentorship programmes for registered nurses. Eight reviews (22, 26–29, 32, 34, 35) presented various types of organisational-level interventions.

## Outcomes in the reviews

A wide range of outcomes were reported in the included reviews. However, with the guidance of Figure 1 it has been possible to categorise the vast majority of them. Furthermore, the categorisation of various outcomes is complicated by the wide array of terms and concepts applied in the reviews. Some outcomes are indicated at different levels of abstraction. Thus, certain reviews examine, for example, mental illness, while others specify components of this broad concept. The same applies to terms such as “burnout” and “stress”. Another challenge is that despite the use of different terms, many concepts are essentially identical or overlap, as in the case of “absenteeism”, “sickness absence”, and “sick leave”, or “job satisfaction” and “work satisfaction”. Table 3 should be regarded as a compilation of examples of the studied outcomes.

**Table 3:** Outcomes in the included reviews.

Category (reference to Figure 1)	Number	Reviews	Studied outcomes (English terms)
Health and well-being (B)	33 reviews	All reviews except: Chen & Lou (30); Zhang et al. (31).	Quality of life; Stress; Psychological strain; Burnout; Depersonalisation; Emotional exhaustion; Emotional health; General health; Psychological distress; Moral distress; Fatigue; Anxiety; Depression; Satisfaction with life; Spiritual well-being; Spiritual integrity; Empathy; Emotional competence; Resilience; Mindfulness; Relaxation; Serenity; Self-compassion; Acceptance; Compassion fatigue; Suicidal ideation; Insomnia; Various physiological outcomes (including Body Mass Index (BMI), weight, physical activity, blood pressure, heart rate variability, and medication intake).
Work-related consequences at the individual level (C)	14 reviews	Buchberger et al. (23); Chen & Lou (30); Zhang et al. (31); Guillaume et al. (40); Gilmartin et al. (47); Häggman-Laitila & Romppanen (43); DeChant et al. (27); Melnyk et al. (50); Niskala et al. (45); Paguio et al. (35); Scheepers et al. (36); Stanulewicz et al. (44); Kletter et al. (54); Stuber et al. (56).	Turnover intentions; Turnover rate (at the individual level); Job satisfaction; Work satisfaction; Motivation; Organisational commitment; Work engagement; Work performance; Competence; Work self-efficacy; Caring efficacy; Communication skills; Work energy; Coping with workload; Role overload; Role boundary; Autonomy; Academic performance; Performance on tasks of attention; Analysis of complex situations; Adherence to evidence-based practice; Sensitivity to patients' experiences; Perception of leadership; Capabilities for transformational leadership.
Consequences at the collective level (D)	Seven reviews	Chen & Lou (30); Häggman-Romppanen (43); DeChant et al. (27); Niskala et al. (45); Paguio et al. (35); Stanulewicz et al. (44); Kletter et al. (54).	Teamwork; Sickness absence; Absenteeism; Sick leave; Staff retention; Staff turnover rates; Productivity; Cost-effectiveness; Quality of care.
Implications for patients (E)	Five reviews	Gilmartin et al. (47); DeChant et al. (27); Paguio et al. (35); Stanulewicz et al. (44); Jung et al. (41).	Patient satisfaction; Diagnostic errors; Adverse events; Errors; Medical negligence; Patient falls.

There were also some reported outcomes that were not considered to be actual outcomes, such as the duration, which should be regarded as a process measure.

As shown in Table 3, there is a strong emphasis on investigating the effects of workplace interventions on the health and well-being of healthcare employees (Component B in Figure 1). In the 33 reviews that focused on interventions aimed at promoting employee health and well-being, over 20 different types of outcomes were examined. However, there is a great deal of overlap between the various kinds of health and wellness outcomes and many different terms for essentially the same type of outcomes. Most reviews focused on mental health, but some reviews also reported interventions that focused on physical health.

14 reviews examined interventions that focused on work-related consequences at the individual level (Component C of Figure 1). Several different types of outcomes were reported, but slightly fewer than for health and well-being. Here, too, there are many similar and/or overlapping outcomes.

Seven reviews reported interventions in which outcomes at the collective level (Component D in Figure 1) were examined, while only five reviews concerned interventions in which outcomes at the patient level (Component E in Figure 1) occurred.

## **Results of the individual-level interventions in the reviews**

The literature search identified a total of 31 reviews that examined the effects of individual-level interventions. Six of these reviews also studied organisational-level interventions, which is why they are described in the next section together with the other reviews of organisational-level interventions. Of the 25 reviews presented here, six concerned physicians, six focused on registered nurses, and 13 studied mixed groups of healthcare professionals. The review provided below distinguishes between reviews that deal with interventions aimed at physicians, registered nurses, and mixed groups of healthcare professionals.

### **Interventions targeting physicians**

The six reviews that evaluated individual-level interventions targeting physicians addressed the effects of mindfulness-based interventions on physician well-being and performance, interventions to increase physician resilience, interventions to manage work-related stress and burnout, interventions to improve mental health, and interventions to reduce suicidal ideations and symptoms of common mental health disorders (especially anxiety and depression) among physicians. These six reviews are described in the sections below.

Scheepers et al. (36) examined how mindfulness-based interventions affect physicians' well-being and work-related performance. The study population included both resident physicians and specialists with various areas of expertise.

The authors included 24 original studies that were identified through a systematic literature review.

The included original studies were of moderate scientific quality, due to several methodological shortcomings (small populations, short timeframe for follow-up of the various interventions, and a lack of randomised controlled trials). Most of the studies had insufficient data to be able to calculate effect size or perform meta-analyses. The findings indicated that physicians experienced some positive effects from mindfulness-based interventions, such as greater understanding of themselves and others, and increased well-being.

A disadvantage of this intervention was that it could be difficult to find time to perform the mindfulness-based exercises. Due to the shortcomings in quality of the included studies, no conclusions could be drawn about the standardised introduction of mindfulness-based exercises in the healthcare sector. However, the authors suggested that this intervention could be offered to employees who have a personal need for it.

Two reviews (37, 38) evaluated the efficacy of the interventions in increasing physician resilience. One review included 22 original studies, the other 17. Fox et al. (37) reported, among other things, psychosocial skills training intervention, mindfulness-based interventions, and relaxation interventions. The authors found it difficult to comment on the results due to methodological shortcomings in the studies and a lack of clarity as to how they defined the concept of resilience. The interventions in the review compiled by Venegas et al. (38) were similar and included stress management courses, resilience training, discussion groups with elements of relaxation exercises and mindfulness-based exercises. The authors concluded that in terms of increased resilience among physicians, there is little evidence to support the argument that any specific intervention is better than another. They noted moderate improvements with regard to burnout in observational studies, but this could not be substantiated in randomised controlled trials, in which such improvement was not evident.

In another review, Clough et al. (24), evaluated interventions for improved management of work-related stress and burnout among physicians. The population included a wide range of physicians from both outpatient and inpatient settings.

However, the majority of the participants in the included studies were general practitioners. A total of 23 studies were included in the review, and it was possible to confirm a reduction in stress levels in particular, as well as a certain positive impact on burnout. The authors pointed out that the included studies are of low quality and that there is a great need for randomised trials in the field.

In one of the reviews by Murray et al. (25), the authors studied general practitioners with a focus on interventions to improve the overall mental

health of this cohort. The interventions included those that were CBT-oriented, focused on stress management training, or mindfulness based. In the short term, there was an improvement in overall mental health, such as lower levels of psychological stress or burnout, as well as increased empathy. However, none of the included studies examined how this improvement was maintained. The authors' assessment of the studies was that they were generally of low quality. They emphasised the need for more high-quality research in this important field.

Petrie et al. (39) examined interventions to reduce suicidal ideations and symptoms of common mental illnesses, particularly anxiety and depression, among physicians. These interventions consisted of cognitive behavioural therapy (CBT) and mindfulness exercises, conducted both in groups and individually. The prevalence of depression, anxiety, general psychological distress and suicidal ideations was examined. The findings indicate that the interventions were associated with a minor reduction in symptoms of common mental illnesses among physicians. In their conclusion, the authors note that there is a lack of research focusing on organisational-level interventions aimed at improving physicians' mental health through changes in their psychosocial work environment.

### **Interventions targeting registered nurses**

Of the six reviews that examined interventions targeting nurses, two were about mindfulness-based mind-body interventions; one review concerned interventions in the form of coping strategies to reduce burnout among nurses; one examined the effects of interventions targeting nurses in managerial positions; one examined the effectiveness of lifestyle interventions, while one concerned interventions whose purpose was to increase nurses' job satisfaction. These six reviews are described in the sections below.

The two reviews (40, 41) that examined mindfulness-based interventions, such as relaxation and meditation, pointed to slightly different outcomes and effects of the interventions. Jung et al. (41) reported no significant results that demonstrated that these interventions would reduce burnout among registered nurses. However, one of the original studies included in the review showed, with statistical significance, that practicing yoga succeeded in reducing the prevalence of some of the criteria included under the umbrella of burnout, namely, depersonalisation (feelings of unreality and uncertainty about self-identity) and emotional exhaustion. However, in the review conducted by Guillaumie et al. (40), a certain effect from mindfulness-based interventions was observed, namely, in terms of reducing anxiety and depression. The authors concluded that mindfulness interventions could be part of workplace wellness programmes.

Lee et al. (42) studied how coping strategies can reduce burnout among registered nurses. They reported that interventions in the form of coping strategies (including stress management, team-based support and training in coping skills) resulted in reduced burnout among registered nurses. This effect persisted for 6 to 12 months post intervention.

The review by Häggman-Laitila & Rompanen (43) studied the effects of interventions (stress management, leadership development) targeting registered nurses in management positions. The included original studies examined a variety of outcome measures, such as burnout, stress, anxiety and the level of job satisfaction. A certain effect was observed in the form of reduced perceived stress. Job satisfaction was unaffected.

The authors concluded that the interventions related to stress management were most successful, but unfortunately the follow-up periods were short, making it impossible to say anything about the long-term effect. The authors called for more higher-quality studies.

Stanulewicz et al. (44) investigated the effectiveness of lifestyle interventions for registered nurses. These included training in stress management and emotional regulation, as well as interventions to increase physical activity, mindfulness and relaxation.

They observed that the best results concerned registered nurses' well-being, level of physical activity, and stress level. For work-related outcome measures, such as job satisfaction, the effects were minor to non-existent.

Niskala et al. (45) examined interventions to improve job satisfaction among registered nurses. The authors concluded that only two different interventions improved registered nurses' job satisfaction; namely, a programme for professional identity development and a programme with a spiritual focus in which the participants received training in addressing ethical issues and taking an empathetic and flexible approach to their everyday lives.

### **Interventions targeting various healthcare professionals**

A total of 13 reviews were identified in which the interventions were aimed at healthcare professionals in general, without focusing on a specific occupational cohort. The majority of these reviews (eight in total) concerned mindfulness-based and psychosocial interventions. The remaining reviews examined interventions to reduce moral distress (stress that occurs in situations in which a person is prevented from following their personal moral compass); leadership interventions to improve employees' mental health; interventions to improve physicians' and registered nurses' mental and physical health and lifestyle, and workplace health promotion interventions. These thirteen reviews are described below.

Six of the reviews that examined mindfulness-based interventions (46–51) reported positive effects of the interventions in the form of reduced levels of burnout, anxiety and depression, among other benefits. The authors also commented on the deficient quality of the original studies, including the low number of participants. A review by Kriakous et al. (52) reported similar positive effects on anxiety and depression, but noted that mindfulness proved less effective in reducing burnout or increasing resilience. Other interventions (such as positive psychology, i.e., the science of human beings' inherent



resources and how these can be developed) appeared to have a certain positive effect on the well-being of healthcare professionals, but the included original studies were of deficient quality. Hill et al. (53); Kletter et al. (54) called for further research in this field, in order to ascertain the effects of this type of intervention.

The reviews conducted by Morley et al. (33) and Imbulana et al. (55) examined interventions aimed at reducing moral distress among healthcare professionals. These included self-reflection, group reflection/debriefing and narrative writing.

Imbulana et al. (55) focused specifically on intensive care personnel, while Morley et al. (33) examined the effect on healthcare professionals in general. The results showed a slight reduction in moral distress among employees, although some original studies included in the review were unable to demonstrate any effect at all.

Buchberger et al. (23) examined studies involving interventions in the form of, among other things, stress management courses, conflict management programmes and knowledge exchange between colleagues. Among other things, the results showed that employees experienced more positive feelings regarding their colleagues, patients and themselves. Employees also managed their workload better after participating in the interventions.

The remaining review article, Stuber et al. (56), examined interventions targeting healthcare leaders/managers and the effects these have on employees' mental health. Such interventions could consist of mentorship or training programmes about positive feedback and its relationship to employees' psychological well-being. In four of the seven included studies, positive effects on employees' mental health were observed (e.g., level of satisfaction with the workplace, work-related stress and self-reported psychological stress).

## **Results of the organisational-level interventions in the reviews**

Organisational-level intervention studies are included in eight of the 35 reviews. Two of the identified reviews only examined studies with organisational-level interventions (27, 29), while the other six reviews included studies with both organisational-level interventions and individual-level interventions (22, 26, 28, 32, 34, 35).

Four of the reviews examined healthcare professionals in general, in different care settings (22, 26, 32, 34). Two of the reviews focused on physicians (27, 28), and one only studied registered nurses (35). All reviews examined outcomes in terms of impact on the health and well-being of healthcare professionals (Component B in the model). Two reviews (27, 35) also studied work-related consequences (Component C), as well as consequences at the collective level (Component D) and implications for patients.

## **Interventions targeting physicians**

West et al. (28) examined the effects of interventions to prevent and reduce burnout among physicians. The review includes 15 randomised controlled trials and 37 observational studies (cohort studies). Of these, a total of 20 studies were organisationally oriented (three randomised trials and 17 observational studies). Organisational-level workplace interventions (referred to as “structural interventions” in this review) consisted of, for example, shortening physicians’ work shifts and/or modifying their work processes. According to the review, both individual and organisational-level interventions can reduce burnout among physicians.

The authors point out that no studies have examined the effects of combinations of individual-level interventions and organisational-level interventions. They believe that such combinations could prove most effective, as they posit that both types of interventions are required to reduce burnout. At the same time, they note that there is a dearth of randomised trials focusing on organisational-level interventions, and call for such studies. In addition, according to the authors, there is a need for assessments of the feasibility of interventions, as well as cost estimates.

Panagioti et al. (26) studied the effects of interventions to reduce burnout among physicians. The authors examined the extent to which various types of interventions (physician-targeted or organisational-level), physician characteristics (professional experience) and care settings (primary or secondary healthcare) were associated with burnout-related improvements. The selected studies comprised randomised trials and controlled “before/after” studies of interventions targeting physician burnout. Nineteen studies were included. The review concluded that organisational-level interventions were associated with moderate yet significant reductions in burnout. These interventions concerned workload, scheduling, communication, teamwork, quality management and discussion groups. One conclusion is that organisational-level interventions can be effective and have many benefits in reducing burnout among physicians. However, this evidence is from studies conducted in different physician groups and healthcare settings. Furthermore, organisational-level interventions were few and far between. The authors argue that this underscores the need for organisational-level interventions, because burnout presents a problem for the entire health/medical care organisation, not just for individuals.

In the review conducted by DeChant et al. (27), the aim was to assess the impact of organisational-level workplace interventions on burnout, stress and job satisfaction. The focus was on physicians in various healthcare settings. The review included a total of 50 studies. According to the authors, most of the studies were of poor quality. They called for more randomised controlled trials to adequately test the effects of organisational-level interventions on physician burnout. However, the authors pointed to some evidence from high-quality organisational-level interventions studies regarding the reduction of burnout among physicians. In these studies, the interventions consisted of

improving workplace processes, promoting team-based care, and reducing the administrative burden that electronic health records could cause. Furthermore, it was demonstrated that interventions that brought about changes in work schedules significantly reduced burnout among physicians.

### **Interventions targeting registered nurses**

The review by Paguio et al. (35) aimed to evaluate the current evidence on the effects of interventions targeting registered nurses. They identified 14 studies. The review highlighted organisational-level interventions that improved registered nurses' work environment, job satisfaction, autonomy and workplace leadership.

Effective interventions were characterised by a focus on process improvements to the work environment, the use of a participatory approach as an intervention strategy, and the involvement of both frontline and executive registered nurses. It was also advantageous for implementation to occur at the unit level. The review observed a significant mix of studies, which made it more difficult to draw general conclusions about which organisational-level interventions are best suited to improve the work environment of registered nurses. The authors point out that research in the field of organisational-level interventions is full of gaps.

### **Interventions targeting various healthcare professionals**

Ruotsalainen et al. (22) evaluated the impact of various interventions, including organisational-level interventions, on reducing work-related stress among healthcare professionals. A systematic literature search was conducted to identify literature that focused on reducing stress and burnout among these health professionals. The review includes 19 studies in which the organisational-level interventions were categorised as organisational and related to "person-work interfaces". These interventions focused on changes in the organisational and social environment of the workplace, for example, in terms of participation in decision-making, organisational restructuring and training. It was concluded that there is limited evidence of any small (but likely relevant) reduction in the stress levels of healthcare professionals as a result of organisational-level interventions.

In a later review, Ruotsalainen et al. (34) evaluated different interventions with regard to their ability to prevent work-related stress among healthcare professionals. The review identified 58 studies, 21 of which examined organisational-level interventions. These organisational-level interventions comprise changes in working conditions, organisation of support, improved communication skills and changes in work schedules. The results provided little evidence that changes in work schedules can lead to reduced stress. Other organisational-level interventions had no evident effect on stress levels. The authors point out that their conclusions are based on a relatively small number of studies.

A review conducted by Brand et al. (29) aimed to identify “whole-system healthy” workplace interventions in healthcare settings, in order to determine whether they improve the health and well-being of professionals in this sector. The review included studies on the reported outcomes of interventions that included all healthcare professionals within a specific care setting (e.g., a hospital or ward) and engaged them in collective activities to improve their physical or mental health and/or promote healthy habits. The review identified eleven studies. The researchers felt that the studies provided evidence that whole-system interventions can improve health and well-being, as well as promote healthier behaviours among healthcare professionals.

The aim of the review compiled by Williams et al. (32) was to systematically review the literature on health and well-being interventions targeting healthcare professionals, in order to assess their effectiveness. A total of 41 studies were identified. Of these, only five studies included organisational-level interventions, which concerned changes in working methods.

These organisational-level interventions gave rise to measurable improvements in health and well-being, such as reduced emotional exhaustion and work-related exhaustion. Yet at the same time, the authors emphasised that the studies had methodological shortcomings.

## Results of the other interventions in the reviews

Six reviews addressed interventions that fell into to the “Other” category, being neither specifically individually nor organisationally oriented. Ruotsalainen et al. (22, 34) and Williams et al. (32) studied multimodal interventions, as well as various individual and organisational-level interventions.

These reviews have been lumped together with the organisational-level interventions. Morley et al. (33) examined multimodal interventions, but also studied individual-level interventions, which is why this review is addressed together with the individual-level interventions.

Two reviews (30, 31) examined mentorship programmes for registered nurses. They only studied recently graduated or newly registered nurses. The authors of both of these studies commented that there is a shortage of studies with control groups comparing the effectiveness of mentorship programmes for newly graduated registered nurses with another group that lacks access to such programmes.

Chen and Lou (30) studied a mentorship programme that incorporated feedback and reflection sessions, as well as the development of problem-solving skills. The outcome measures used included, for example, employee turnover, competence, job satisfaction and communication skills. The results indicated reduced staff turnover, lower turnover-related costs and fewer medical errors. Furthermore, improved job satisfaction, communication skills and competence were observed among the registered nurses, as well as better interpersonal

relationships. The authors concluded that mentorship programmes for recently registered nurses can benefit both the nurses and their mentors. Zhang et al. (31) reported similar results in terms of the positive effects of mentorship programmes (including both technical and emotional support) for both registered nurses and mentors, as well as for the organisation as a whole (through reduced staff turnover).

## The findings of the reviews of Swedish interventions

Relatively few Swedish intervention studies are included in the identified reviews. Seven original studies were identified on the basis of the reviews of the included studies. However, one (58) of these was not found to be an interventional study, because it concerned how changes in the healthcare sector have affected the quality of care, staff abilities, and organisational efficiency, according to a survey of doctors and registered nurses in one region. This means that no conscious, planned intervention was studied, which is why it has been excluded from this report. Thus, only six original Swedish studies are presented here.

Three of the six included intervention studies that studied healthcare professionals in general, while two studies focused on registered nurses (59, 60) and one on physicians (61). Three of the studies reported on individual-level interventions, while another three (59, 62) can be classified as falling into the “Other” category. With the exception of Öhrling and Hallberg (60), all the studies identified outcomes in terms of health and well-being (Component B of the model). Petterson et al. (59, 63) also studied work-related consequences (Component C). Öhrling and Hallberg (60) studied these too, as did Petterson and Arnetz (62) and Bergman et al. (61). The latter also examined certain consequences at the collective level (Component D).

### Original study: Lökk and Arnetz (64)

Lökk and Arnetz (64) investigated how staff at a hospital’s geriatric clinic were affected by an organisational change. The intervention is described as an “empowerment programme”, in which 14 people at the clinic met in groups with an experienced licenced psychologist on a regular basis, starting 10 weeks before the organisational change was to take place and ending 10 weeks after. Due to scheduling challenges, staff attended these group meetings every two weeks. The intervention itself comprised two parts. In the first part, the psychologist taught the participants about various types of stress reactions. In the second part, group members were encouraged to talk and discuss matters among themselves, with the psychologist taking on a more facilitating role. When the participants met with the psychologist for a final session, they summarised what they had learned and which problem-solving strategies they found helpful. At the same hospital, twelve people at a control clinic were not provided the same access to a psychologist compared to the intervention group. In the control group, the same psychologist who took part in the intervention group only participated as an observer at the clinic’s staff meetings. Various stress-related biomarkers were studied as outcomes. The conclusion was that

“psychosocial empowerment programmes are beneficial when organisational changes are implemented in healthcare settings”.

**Original study: Petterson and Arnetz (62)**

Petterson and Arnetz (62) studied different departments at a large regional hospital that implemented interventions to improve the work environment and the health of its staff. The interventions themselves are not described in detail in the article. To create a baseline, personnel in each department were asked to complete a questionnaire regarding their experiences of the following areas: the quality of their work (skills and competence development, work-related requirements, workload, organisational climate and clarity of objectives); support at work (social climate, control over their work, coping skills); and health (psychosomatic symptoms, exhaustion). One year after the implementation of the interventions, these areas were followed up with a new questionnaire. The results of this department were then compared with their own previous values. Each department was able to choose the improvement targets on which it wanted to focus, based on indications from the baseline measurement for their particular department. A local project team ensured the continuity of the work. Departments that were highly active in their improvement measures were compared with departments characterised by low activity.

According to the authors, the study showed that positive effects of interventions at the organisational level can be achieved through a combination of different key factors. Foremost among these were a strong foundation of support within the organisation prior to implementation and a positive attitude among employees and committed managers.

**Original study: Öhrling and Hallberg (60)**

Öhrling and Hallberg (60) studied various aspects of the supervision of registered nurses in a qualitative interview study. The intervention consisted of supervision during the registered nurses' clinical practice, in the third year of their training. The study focused on the experiences of the supervisors. The conclusion was that this kind of supervision can facilitate the student nurses' learning and constitute a kind of protective shield during their period of learning (“sheltering the students when learning”).

**Original study: Petterson et al. (59)**

Petterson et al. (59) examined interventions targeting the staff, the workplace and the organisational level in 12 retirement homes. The aim of the interventions was to empower assistant nurses and care assistants to improve their own health, well-being and working conditions, as well as the quality of care. Measurements were obtained through a survey conducted before and after an 18-month intervention period.

Changes in the studied outcomes were minor and not statistically significant. One conclusion is that middle managers should be involved in project planning and decision-making.

**Original study: Bergman et al. (61)**

Bergman et al. (61) studied how eight dialogue groups comprising a total of 60 physicians at a hospital's paediatric clinic influenced various psychosocial work environment outcomes. The groups aimed to improve communication, build consensus and solve problems by giving physicians the opportunity to "think together". This was investigated through a survey conducted before and after the implementation of the dialogue groups. Several different outcomes were studied, including the participants' perceptions of the social climate, leadership, organisational efficiency, work-related exhaustion, mental energy and workload. The conclusion was that "dialogue groups can be a way to improve physicians' psychosocial work environment".

**Original study: Peterson et al. (63)**

Peterson et al. (63) examined the effects of participation in a "reflecting peer support" group, with regard to health, burnout and perceived changes in working conditions. The group offered opportunities for discussion and reflection with colleagues, with a focus on work-related stress and burnout. The intervention was offered to 660 people in various healthcare professions. Of these, 51 people participated in the intervention group and 80 in a control group, which did not participate in these meetings. Meetings were held over a period of 10 weeks, with a two-hour meeting each week and a follow-up meeting four weeks later. Several favourable outcomes were noted, among them improvements in the health, quantitative work demands and opportunities for participation and support at work of the intervention participants.

## **Results from other original Swedish studies and reports**

In addition to the Swedish studies included in the reviews, three original Swedish studies were identified. One of these studies was identified by searching for dissertations, and one report was discovered in the grey literature from the searches for interventions conducted in a Swedish context. In two of the studies (65, 66), the study population was made up of registered nurses, and in one study (67), it comprised a combination of healthcare professionals. One of the studies examined individual-level interventions (65) and two examined the effects of interventions classified as "Other" (66, 67). Two of the studies (65, 67) reported outcomes in terms of health and well-being (Component B). Jochim and Rosengren (66) identified outcomes in the form of consequences at the collective level (Component D) and implications for patients (Component E).

The report (68) was prepared by the Swedish Agency for Health Technology Assessment (SBU) and concerned registered nurses and assistant nurses. The focus was on individual scheduling, which can be seen both as an individual-level intervention (since employees' schedules can vary) and as an organisational-level intervention (since it aims to change the employees' work situation). The measured outcomes included job satisfaction and reduced staff turnover (Components C and D).

**Original study: Dahlgren et al. (65)**

Dahlgren et al. (65) conducted a randomised controlled trial to investigate the effects of a “proactive intervention” aimed at improving the recovery from stress of registered nurses. The study included 99 registered nurses in the intervention group and 108 in the control group. The intervention consisted of group training comprising three sessions (2.5 hours) over the course of one month. The intervention was based on cognitive behavioural therapy techniques and motivational interviewing. The primary outcomes of the study were the impact on sleep, burnout, fatigue, cognitive fatigue, work-induced fatigue and somatic symptoms. Secondary outcome measures related to perceived stress, tension and lethargy, as well as dysfunctional thoughts and attitudes regarding sleep. The results were mixed. After three course sessions, beneficial effects were noted for somatic symptoms, burnout and fatigue symptoms. No statistically significant improvements in other outcomes were noted.

**Original study: Jochim and Rosengren (66)**

Jochim and Rosengren (66) studied the effects of mentorship (“preceptorship”) among registered nurses. The project investigated the effects of employment for one year of two experienced registered nurses in an internal medicine department at a 167-bed hospital in Sweden. Both qualitative and quantitative methods were used. Six measures of the work environment were obtained from the hospital’s annual survey: professional development, workload, support at work, knowledge, support from colleagues and collaboration.

Data were collected on staff turnover and short-term sickness absence among the registered nurses. With respect to the quality of care provided to patients, four indicators were studied. Two focus group interviews were conducted with registered nurses in order to broaden their understanding of the importance of mentorship for the work environment. Improvements in the work environment and quality of care were limited. On the other hand, both staff turnover and sickness absence decreased significantly. The focus group interviews indicated that the mentorship model had many strengths.

**Original study: Holmberg (67)**

One of the studies included in Holmberg’s dissertation (67) evaluated the efficacy of an intervention focused on communication skills training, which aimed to improve the psychological health of all staff in an anaesthesia clinic (including intensive care, surgical and anaesthesiology personnel).

The study had a before/after design, but lacked a control group. 100 employees in an intensive care unit participated. The intervention comprised one day of training in large groups and three group meetings lasting two hours each. The group meetings were led by a psychologist, and the employees had the opportunity to share and discuss challenging situations at work. They practiced listening, asking for help, showing appreciation, saying “no”, and sharing mistakes in their work. Before, during and after the intervention, the employees completed a questionnaire with questions about various aspects of



their mental health. The results showed significant differences in levels of stress and general mental health. No significant changes were noted with regard to psychological flexibility and work engagement. The author concluded that the findings support the use of the intervention, but that it needs to be studied further in larger, better-designed studies.

**Report: SBU (68)**

The report summarised the results from four literature reviews. Two of these were systematic literature reviews, while two were integrative reviews that included both quantitative and qualitative studies. The authors of the reviews concluded that individual scheduling supports more flexible work schedules and can benefit healthcare professionals and their organisations, but that it can be challenging to implement and maintain such systems. Two of the reviews reported that individual scheduling decreased employee turnover.

# 7. Discussion

This systematic literature review is about the factors that contribute to creating healthy and prosperous workplaces in the healthcare sector. A systematic literature search of reviews in the field was conducted in order to compile knowledge about the effects of workplace interventions aimed at achieving a better psychosocial work environment in the healthcare sector. Among the reviews were six original Swedish studies, which were also included. We also examined three original Swedish studies that were not included in the reviews, as well as a report from the grey literature that was identified during an additional search of databases and websites.

This chapter summarises and discusses the main findings of the included reviews. This is followed by an account of knowledge gaps that we have identified on the basis of the literature review, as well as advice regarding these knowledge needs.

A methodological discussion follows, after which the chapter ends with our conclusions.

## Summary of the main findings

This systematic literature review is based on two different literature searches. The first search was conducted in 2019 and the second in 2021, with the aim of updating the first one and identifying reviews published after 2019. A total of 35 relevant reviews were identified. These included only six original Swedish studies, conducted between 1997 and 2008. This timeframe is somewhat outdated, given the increasingly highlighted psychosocial work environment problems in the healthcare sector. In addition to the Swedish studies cited in the reviews, three original Swedish studies not included in the reviews were identified, as well as one report in the grey literature.

All 35 reviews relate to the healthcare sector. Despite this, there was a marked heterogeneity in terms of occupational groups, interventions and outcomes. This makes it difficult to draw clear conclusions about which workplace-related interventions are most effective. There was a distinct focus on individual-level interventions; indeed, individual-level interventions were presented in 31 of the reviews. Only eight reviews dealt with organisational-level interventions, i.e., interventions that focus on changing the organisation, rather than individuals. Of the eight identified reviews that included organisational-level interventions, only two (27, 29) focused solely on organisational-level interventions. The other reviews studied both individual-level interventions and organisational-level interventions. The dearth of organisational-level interventions was highlighted by the authors of many of the reviews.

The individual-level interventions were typified by a focus on interventions aimed at promoting health and well-being (Component B of Figure 1) and achieving increased job satisfaction and improved work performance (Component C).

Thus, in most cases, it is assumed that solutions to psychosocial work environment problems are to be found at the individual level. Common individual-level interventions included various forms of mental and psychological exercises, often conducted in groups. These included mindfulness training, stress management courses, relaxation exercises, coping strategies and cognitive behavioural therapy. According to several reviews, these interventions produced some positive results for employees' health and well-being. However, many studies lack comparison groups, and the number of participants was often low. Several reviews also pointed out that short follow-up periods make it difficult to draw conclusions about the long-term effects of the interventions.

The organisational-level interventions focused on the organisational and social aspects of the workplace. For example, they could comprise initiatives for changing working hours and schedules, reducing workloads, and improving teamwork and communication. Most organisational-level interventions primarily aimed to improve health and well-being (Component B). According to many reviews, these interventions can improve health and well-being. However, few general conclusions could be drawn, because the primary studies included in the reviews were often marred by methodological shortcomings. Moreover, several reviews contained relatively few organisational-level interventions, which also makes it more difficult to draw conclusions about their effectiveness.

In general, both individual-level and organisational-level interventions yielded only minor effects. In several reviews, the authors concluded that based on the studies alone, it was difficult to discern clear patterns and draw clear conclusions about what is most effective. Many reviews bemoaned the scarcity and small size of the primary studies. For this reason, we can neither point to certain interventions as being most effective in all situations, nor identify specific "success factors" for improving the psychosocial work environment in the healthcare sector.

The four reviews that examined the effects of multimodal interventions identified a reduction in moral distress, as well as in overall stress, anxiety and general symptoms. The authors of these reviews pointed out that the original studies had some methodological flaws that make generalisability difficult. The authors concluded that more research is needed (9, 19–21).

A variety of outcomes were examined in the reviews. Figure 1 allowed for a rough breakdown of the outcomes, but research on the psychosocial work environment appears to be quite heterogeneous with respect to outcomes. The primary outcome was health and well-being (Component B in Figure 1),

including stress, burnout, depression and quality of life. This was studied in 33 of the 35 reviews. Significantly fewer reviews (14 in total) studied various work-related outcomes at the individual level (Component C), including the effect of interventions on job satisfaction, job performance, organisational commitment, as well as considering leaving the profession. Consequences at the collective level (Component D) were examined in seven reviews. These included sickness absence, staff turnover and quality of care. Five reviews studied implications for patients (Component E), including patient satisfaction and the risk of adverse events.

## Need for knowledge

Problems with the psychosocial work environment in the healthcare sector are not a new phenomenon, but this systematic literature review indicates that the relevance of the topic has increased. The first search was conducted in 2019 and identified 18 relevant reviews published between 2008 and 2018, while the second search resulted in 17 reviews published between 2019 and 2021. This points to a marked increase in research focused on the psychosocial work environment of healthcare employees.

The COVID-19 pandemic has further underscored the need for efforts to improve the psychosocial work environment in this sector. The Chair of the Swedish Medical Association, together with the Chair of the Swedish Association of Health Professionals, has called on the Government to establish a crisis committee to investigate the work environment in the healthcare sector (53).

This begs the question: In light of these known problems and the knowledge compiled and analysed in this systematic literature review, what kind of research is needed? Several reviews pointed to important knowledge gaps regarding workplace interventions and their effects on the psychosocial work environment in the healthcare sector. The authors of several reviews called for randomised controlled trials, as this study design creates the most optimal conditions for establishing internal validity, i.e., for ensuring that the achieved effects are truly contingent upon the implemented intervention. Furthermore, studies of the long-term effects of the interventions and their cost-effectiveness were requested.

There is a need for further research on organisational-level interventions; these are in short supply, yet can also be assumed to be more effective and provide greater long-term effects than individual-level interventions, the purpose of which is to strengthen the individual's mental ability to deal with the demands and stress in their work environment. Individual-level interventions primarily focus on various approaches to changing the thinking and behaviours of the individual, with the aim of affecting their health and well-being.

In addition to intervention studies, we believe there would be great value in identifying successful workplaces (and other units) in the healthcare sector at which promising results have been achieved with respect to work-related

outcomes at the individual level (e.g., job satisfaction, engagement at work and work performance), as well as positive outcomes at the collective level (such as a better work climate and less sickness absence). The aim would thus be to study successful cases in order to identify what it is that keeps employees happy and healthy in their workplace. This would require research to systematically identify potentially successful cases, after which case studies would be conducted to describe and analyse how these workplaces have addressed the psychosocial work environment, as well as evaluate relevant outcomes. Comparative case study research could allow for the identification of success factors in achieving a better psychosocial work environment. This approach could thus be an alternative to studies based on researcher-led interventions. We believe that both approaches have merit.

## Methodology discussion

This systematic literature review has been drafted in accordance with established principles for conducting systematic reviews, such as the international standard used by the Cochrane Database of Systematic Reviews. The method follows a stringent process for defining and delineating a research question, systematic searches of references in several electronic databases, the screening of references, and relevance and quality reviews of full-text articles that can contribute to answering the research question. The process is transparent in the sense that readers should be able to interpret the study's findings based on its research question, inclusion and exclusion criteria, and any other applied restrictions. To the extent possible, the selection process and data extraction must also be carried out by at least two independent reviewers, thereby reducing the risk that results could be included that distort the overall portrayal of the knowledge compiled. Within the context of this systematic literature review, four people have reviewed every aspect of this process.

The literature searches on which this systematic literature review is based were conducted in three digital databases: PubMed (Medline), Cinahl and PsycINFO. The searches were carried out in collaboration with literature search experts at Lund University. The searches have been restricted to studies that are themselves systematic reviews. This limits our ability to map issues that other researchers have chosen to study. We also chose to consider and review all Swedish primary studies included in these reviews.

The quality of the systematic reviews included in this systematic literature review has been assessed using the AMSTAR instrument. However, we have not assessed the quality of the primary studies that the authors of each study in our compilation included in their own review. One of the criteria for a moderately well-conducted systematic review is that the authors must have assessed the quality of the primary studies they included. However, we have not passed judgment on the accuracy of the authors' assessments. Likewise, we have neither assessed (i.e., evidence graded) the reliability of the authors' conclusions, nor assessed whether they are relevant and transferable to a Swedish context.

In the compilation of knowledge about interventions to improve the psychosocial work environment in the healthcare sector, the definition of concepts can prove challenging. The concept of a “psychosocial work environment” can be interpreted slightly differently within different specialist and subject areas and research disciplines. Our starting point has been a broad interpretation of the concept that captures the psychological, individual and group perspective, as well as the social interactions that occur between individuals and within groups. Other interpretations, search strategies and restrictions would of course affect the results.

We have chosen not to include systematic reviews of studies whose interventions were limited to yoga or other physical activities. On the other hand, reviews about mindfulness and other stress-reducing interventions are included, provided that they were implemented in a workplace context.

A broader definition of types of interventions that may affect the psychosocial work environment would probably have led to the inclusion of more studies.

## Recommendations

It is difficult to make recommendations on the basis of the findings of the reviews we have studied, as they are neither convincing nor conclusive. However, we posit that organisational-level interventions have the greatest potential to contribute to creating a good and sustainable psychosocial work environment for healthcare employees. Unfortunately, few studies focus on preventive interventions for improving the work environment. Instead, most studies address interventions aimed at curing and alleviating symptoms at the individual level, rather than influencing the psychosocial work environment (for example, by changing schedules or changing work tasks) (68).

In individual-level interventions, the responsibility for health and well-being is placed on the individual, rather than on the work environment, the work organisation and the employer. We believe there is great value in so-called “primary interventions”, whose purpose is to address the root causes of work-related stress and other problems related to employees’ health and well-being (69,70). Primary interventions may include, for example, changes in work tasks and improved social support and leadership.

Workplace-oriented interventions that combine organisational, group and individual levels are considered to be the most effective, as they yield the most sustainable and long-term benefits for both the individual and the organisation (69, 70). At the same time, organisational-level interventions are likely to pose greater methodological challenges, as it is more difficult to control contextual and other factors that may affect the implementation and outcome of such interventions.

## Conclusions

The aim of this systematic literature review was to identify the systematic literature reviews that have examined workplace-related interventions to improve the psychosocial work environment in the healthcare sector, and to review the results of these interventions. We identified 35 reviews that were quite heterogeneous with respect to the studied occupational groups, interventions and outcomes. This makes it difficult to draw straightforward conclusions about which workplace interventions are the most effective in improving the psychosocial work environment in the sector.

Of the 35 reviews, 31 reported on individual-level interventions, while eight reviews included organisational-level interventions. Several authors highlighted that too little research has been conducted on organisational-level interventions. In general, the effects of both individual-level and organisational-level interventions were negligible.

The primary outcome in the reviews was the effects of the interventions on the health and well-being of healthcare staff. Other outcomes were examined less frequently: work-related outcomes at the individual level (e.g., effect on job satisfaction and performance), consequences at the collective level (e.g., sickness absence and staff turnover), as well as consequences for patients (e.g., patient satisfaction and frequency of adverse events).

The systematic literature review also aimed to examine the original Swedish studies that appeared in these literature reviews. We found only six Swedish studies, published between 1997 and 2008. All of them focused on individual-level interventions. We also examined three original Swedish studies that were not included in the 35 reviews, as well as a report from the grey literature that was identified during an additional search of databases and websites. However, the dissimilarity of these studies precludes any conclusions being drawn about which interventions are most effective.

## 8. References

1. Arbetsgivarverket. Psykosocial arbetsmiljö; 2022. Hämtad från: <https://www.arbetsgivarverket.se/ledare-i-staten/arbetsgivarguiden/arbetsmiljo/psykosocial-arbetsmiljo/?acceptCookies=true>.
2. Karasek R, Theorell T. *Healthy work: Stress, productivity and the reconstruction of working life*. New York: Basic Books; 1990.
3. Siegrist J, Li J, Montano D. Psychometric properties of the effort-reward imbalance questionnaire. Department of Medical Sociology, Faculty of Medicine, Duesseldorf University, Germany; 2014. Hämtad från: [https://www.uniklinik-duesseldorf.de/fileadmin/Fuer-Patienten-und-Besucher/Kliniken-Zentren-Institute/Institute/Institut\\_fuer\\_Medizinische\\_Soziologie/Dateien/ERI/ERI\\_Psychometric-New.pdf](https://www.uniklinik-duesseldorf.de/fileadmin/Fuer-Patienten-und-Besucher/Kliniken-Zentren-Institute/Institute/Institut_fuer_Medizinische_Soziologie/Dateien/ERI/ERI_Psychometric-New.pdf)
4. Hawe P, Potvin L. What is population health intervention research? *Canadian Journal of Public Health*. 2009;100(1):18–114.
5. Lundström U, Parding K. Teachers' experiences with school choice: Clashing logics in the Swedish education system. *Education Research International*. 2011;2011:1-10.
6. Martin K. Medscape family medicine physician lifestyle, happiness & burnout report 2020. Hämtad från: <https://www.medscape.com/slideshow/2020-lifestyle-family-medicine-6012495>.
7. McKinley N, McCain RS, Convie L, Clarke M, Dempster M, Campbell WJ, et al. Resilience, burnout and coping mechanisms in UK doctors: A cross-sectional study. *BMJ Open*. 2020;10(1):e031765.
8. Anskär E, Lindberg M, Falk M, Andersson A. Legitimacy of work tasks, psychosocial work environment, and time utilization among primary care staff in Sweden. *Scandinavian Journal of Primary Health Care*. 2019;37(4):476–483.
9. Anskär E, Lindberg M, Falk M, Andersson A. Time utilization and perceived psychosocial work environment among staff in Swedish primary care settings. *BMC Health Services Research*. 2018;18(1).
10. Werdecker L, Esch T. Burnout, satisfaction and happiness among German general practitioners (GPs): A cross-sectional survey on health resources and stressors. *PLOS ONE*. 2021;16(6):e0253447.
11. Areskoug Josefsson K, Avby G, Andersson Bäck M, Kjellström S. Workers' experiences of healthy work environment indicators at well-functioning primary care units in Sweden: A qualitative study. *Scandinavian Journal of Primary Health Care*. 2018;36(4):406–414.
12. Le Floch B, Bastiaens H, Le Reste JY, Lingner H, Hoffman R, Czachowski S, et al. Which positive factors give general practitioners job satisfaction and make general practice a rewarding career? A European multicentric qualitative research by the European general practice research network. *BMC Family Practice*. 2019;20(1).
13. Nilsen P, Fernemark H, Seing I, Schildmeijer K, Ericsson C, Skagerström J. Working conditions in primary care: A qualitative interview study with physicians in Sweden informed by the Effort-Reward-Imbalance model. *BMC Family Practice*. 2021;22(1).
14. Maslach C, Jackson SE, Leiter MP. *Maslach Burnout Inventory Manual*: MBI. Consulting Psychologists Press; 1996.
15. Kuusio H, Heponiemi T, Sinervo T, Elovainio M. Organizational commitment among general practitioners: A cross-sectional study of the role of psychosocial factors. *Scandinavian Journal of Primary Health Care*. 2010;28(2):108–114.
16. Dyrbye LN, Shanafelt TD, Sinsky CA, Cipriano PF, Bhatt J, Ommaya A, et al. Burnout among health care professionals: A call to explore and address this underrecognized threat to safe, high-quality care. *NAM Perspectives*. 2017;7(7).



17. Shanafelt TD, Balch CM, Bechamps G, Russell T, Dyrbye L, Satele D, et al. Burnout and medical errors among American surgeons. *Annals of Surgery*. 2010;251(6):995–1000.
18. Shanafelt TD, West CP, Sinsky C, Trockel M, Tutty M, Satele DV, et al. Changes in burnout and satisfaction with work-life integration in physicians and the general US working population between 2011 and 2017. *Mayo Clinic Proceedings*. 2019;94(9):1681–1694.
19. Thun S, Halsteinli V, Løvseth L. A study of unreasonable illegitimate tasks, administrative tasks, and sickness presenteeism amongst Norwegian physicians: An everyday struggle? *BMC Health Services Research*. 2018;18(1):407.
20. Lewis PS, Malecha A. The impact of workplace incivility on the work environment, manager skill, and productivity. *JONA: The Journal of Nursing Administration*. 2011;41(1):41–47.
21. SBU. AMSTAR 2012. Hämtad från <https://www.sbu.se/contentassets/601-fb156be5046c59035084c7ff5554c/amstar-svenska-121001.pdf>.
22. Ruotsalainen J, Serra C, Marine A, Verbeek J. Systematic review of interventions for reducing occupational stress in health care workers. *Scandinavian Journal of Work, Environment & Health*. 2008:169–178.
23. Buchberger B, Heymann R, Huppertz H, Friepörtner K, Pomorin N, Wasem J. The effectiveness of interventions in workplace health promotion as to maintain the working capacity of health care personal. *GMS Health Technology Assessment*. 2011;7:Doc06.
24. Clough BA, March S, Chan RJ, Casey LM, Phillips R, Ireland MJ. Psychosocial interventions for managing occupational stress and burnout among medical doctors: A systematic review. *Systematic Reviews*. 2017;6(1).
25. Murray M, Murray L, Donnelly M. Systematic review of interventions to improve the psychological well-being of general practitioners. *BMC Family Practice*. 2016;17(1).
26. Panagioti M, Panagopoulou E, Bower P, Lewith G, Kontopantelis E, Chew-Graham C, et al. Controlled interventions to reduce burnout in physicians. *JAMA Internal Medicine*. 2017;177(2):195.
27. DeChant PF, Acs A, Rhee KB, Boulanger TS, Snowdon JL, Tutty MA, et al. Effect of organization-directed workplace interventions on physician burnout: A systematic review. *Mayo Clinic Proceedings: Innovations, Quality & Outcomes*. 2019;3(4):384–408.
28. West CP, Dyrbye LN, Erwin PJ, Shanafelt TD. Interventions to prevent and reduce physician burnout: A systematic review and meta-analysis. *The Lancet*. 2016;388(10057):2272–81.
29. Brand SL, Thompson Coon J, Fleming LE, Carroll L, Bethel A, Wyatt K. Whole-system approaches to improving the health and wellbeing of healthcare workers: A systematic review. *PLOS ONE*. 2017;12(12):e0188418.
30. Chen CM, Lou MF. The effectiveness and application of mentorship programmes for recently registered nurses: A systematic review. *Journal of Nursing Management*. 2014;22(4):433–442.
31. Zhang Y, Qian Y, Wu J, Wen F, Zhang Y. The effectiveness and implementation of mentoring program for newly graduated nurses: A systematic review. *Nurse Education Today*. 2016;37:136–144.
32. Williams SP, Malik HT, Nicolay CR, Chaturvedi S, Darzi A, Purkayastha S. Interventions to improve employee health and well-being within health care organizations: A systematic review. *Journal of Healthcare Risk Management*. 2018;37(4):25–51.
33. Morley G, Field R, Horsburgh CC, Burchill C. Interventions to mitigate moral distress: A systematic review of the literature. *International Journal of Nursing Studies*. 2021;121:103984.
34. Ruotsalainen JH, Verbeek JH, Mariné A, Serra C. Preventing occupational stress in healthcare workers. *Cochrane Database of Systematic Reviews*. 2015.
35. Paguio JT, Yu DSF, Su JJ. Systematic review of interventions to improve nurses' work environments. *Journal of Advanced Nursing*. 2020;76(10):2471–2493.

36. Scheepers RA, Emke H, Epstein RM, Lombarts K. The impact of mindfulness-based interventions on doctors' well-being and performance: A systematic review. *Medical Education*. 2020;54(2):138–149.
37. Fox S, Lydon S, Byrne D, Madden C, Connolly F, O'Connor P. A systematic review of interventions to foster physician resilience. *Postgraduate Medical Journal*. 2018;94(1109):162–170.
38. Venegas CL, Nkangu MN, Duffy MC, Fergusson DA, Spilg EG. Interventions to improve resilience in physicians who have completed training: A systematic review. *PLOS ONE*. 2019;14(1):e0210512.
39. Petrie K, Crawford J, Baker STE, Dean K, Robinson J, Veness BG, et al. Interventions to reduce symptoms of common mental disorders and suicidal ideation in physicians: A systematic review and meta-analysis. *The Lancet Psychiatry*. 2019;6(3):225–234.
40. Guillaumie L, Boiral O, Champagne J. A mixed-methods systematic review of the effects of mindfulness on nurses. *Journal of Advanced Nursing*. 2017;73(5):1017–1034.
41. Jung SE, Ha DJ, Park JH, Lee B, Kim MS, Sim KL, et al. The effectiveness and safety of mind-body modalities for mental health of nurses in hospital setting: A systematic review. *International Journal of Environmental Research and Public Health*. 2021;18(16).
42. Lee H-F, Kuo C-C, Chien T-W, Wang Y-R. A meta-analysis of the effects of coping strategies on reducing nurse burnout. *Applied Nursing Research*. 2016;31:100–110.
43. Häggman-Laitila A, Romppanen J. Outcomes of interventions for nurse leaders' well-being at work: A quantitative systematic review. *Journal of Advanced Nursing*. 2018;74(1):34–44.
44. Stanulewicz N, Knox E, Narayanasamy M, Shivji N, Khunti K, Blake H. Effectiveness of lifestyle health promotion interventions for nurses: A systematic review. *International Journal of Environmental Research and Public Health*. 2019;17(1).
45. Niskala J, Kanste O, Tomietto M, Miettunen J, Tuomikoski AM, Kyngas H, et al. Interventions to improve nurses' job satisfaction: A systematic review and meta-analysis. *Journal of Advanced Nursing*. 2020;76(7):1498–1508.
46. Lamothe M, Rondeau É, Malboeuf-Hurtubise C, Duval M, Sultan S. Outcomes of MBSR or MBSR-based interventions in health care providers: A systematic review with a focus on empathy and emotional competencies. *Complementary Therapies in Medicine*. 2016;24:19–28.
47. Gilmartin H, Goyal A, Hamati MC, Mann J, Saint S, Chopra V. Brief mindfulness practices for healthcare providers: A systematic literature review. *The American Journal of Medicine*. 2017;130(10):1219.e1.
48. Lomas T, Medina JC, Ivtzan I, Rupprecht S, Eiroa-Orosa FJ. A systematic review and meta-analysis of the impact of mindfulness-based interventions on the well-being of healthcare professionals. *Mindfulness*. 2018;10(7):1193–1216.
49. Spinelli C, Wisener M, Khoury B. Mindfulness training for healthcare professionals and trainees: A meta-analysis of randomized controlled trials. *Journal of Psychosomatic Research*. 2019;120:29–38.
50. Melnyk BM, Kelly SA, Stephens J, Dhakal K, McGovern C, Tucker S, et al. Interventions to improve mental health, well-being, physical health, and lifestyle behaviors in physicians and nurses: A systematic review. *American Journal of Health Promotion*. 2020;34(8):929–941.
51. Salvado M, Marques DL, Pires IM, Silva NM. Mindfulness-based interventions to reduce burnout in primary healthcare professionals: A systematic review and meta-analysis. *Healthcare (Basel)*. 2021;9(10).
52. Kriakous SA, Elliott KA, Lamers C, Owen R. The effectiveness of mindfulness-based stress reduction on the psychological functioning of healthcare professionals: A systematic review. *Mindfulness (NY)*. 2021;12(1):1–28.
53. Hill RC, Dempster M, Donnelly M, McCorry NK. Improving the wellbeing of staff who work in palliative care settings: A systematic review of psychosocial interventions. *Palliative Medicine*. 2016;30(9):825–833.

54. Kletter M, Harris B, Brown C. Outcomes, mechanisms and contextual factors of positive psychology interventions for health workers: A systematic review of global evidence. *Human Resources for Health*. 2021;19(1):24.
55. Imbulana DI, Davis PG, Prentice TM. Interventions to reduce moral distress in clinicians working in intensive care: A systematic review. *Intensive and Critical Care Nursing*. 2021;66:103092.
56. Stuber F, Seifried-Dubon T, Rieger MA, Gundel H, Ruhle S, Zipfel S, et al. The effectiveness of health-oriented leadership interventions for the improvement of mental health of employees in the health care sector: A systematic review. *International Archives of Occupational and Environmental Health*. 2021;94(2):203–220.
57. Panagioti M, Geraghty K, Johnson J, Zhou A, Panagopoulou E, Chew-Graham C, et al. Association between physician burnout and patient safety, professionalism, and patient satisfaction. *JAMA Internal Medicine*. 2018;178(10):1317.
58. Arnetz B. Staff perception of the impact of health care transformation on quality of care. *International Journal for Quality in Health Care*. 1999;11(4):345–351.
59. Petterson IL, Donnersvård HÅ, Lagerström M, Toomingas A. Evaluation of an intervention programme based on empowerment for eldercare nursing staff. *Work & Stress*. 2006;20(4):353-369.
60. Öhrling K, Hallberg IR. The meaning of preceptorship: Nurses' lived experience of being a preceptor. *Journal of Advanced Nursing*. 2001;33(4):530–540.
61. Bergman D, Arnetz B, Wahlstrom R, Sandahl C. Effects of dialogue groups on physicians' work environment. *Journal of Health Organisation and Management*. 2007;21(1):27–38.
62. Petterson I-L, Arnetz BB. Psychosocial stressors and well-being in health care workers: The impact of an intervention program. *Social Science & Medicine*. 1998;47(11):1763–1772.
63. Peterson U, Bergstrom G, Samuelsson M, Asberg M, Nygren A. Reflecting peer-support groups in the prevention of stress and burnout: Randomized controlled trial. *Journal of Advanced Nursing*. 2008;63(5):506–516.
64. Lökk J, Arnetz B. Psychophysiological concomitants of organizational change in health care personnel: Effects of a controlled intervention study. *Psychotherapy and Psychosomatics*. 1997;66(2):74–77.
65. Dahlgren A, Tucker P, Epstein M, Gustavsson P, Söderström M. Randomised control trial of a proactive intervention supporting recovery in relation to stress and irregular work hours: Effects on sleep, burn-out, fatigue and somatic symptoms. *Occupational & Environmental Medicine*. 2022;79(76)
66. Jochim V, Rosengren K. Nursing preceptorship, a supportive and reflective approach for promoting a healthy working environment: A multi-methods design. *Nordic Journal of Nursing Research*. 2022;42(3):147–157
67. Holmberg J. *Psychological factors and communication skills training in intensive care medical staff*. Diss. Karolinska Institutet. 2022. ISBN: 9789180166300
68. SBU. *Individuell schemaplanering*. Statens beredning för medicinsk och social utvärdering. 2018-02-01.
69. Fagerlind Ståhl A. *Arbete och psykisk hälsa: Viktigt vetande och vanliga myter*: Lund: Studentlitteratur; 2021
70. Gjerde M. *Arbetsmiljöinterventioner med fokus på organisation, stress och ohälsa*. KTH Skolan för teknik och hälsa. Enheten för ergonomi; 2014.



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