Taking care of hospital physicians: Development and implementation of a job-specific workers' health surveillance
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CHAPTER 1

General introduction
General introduction

Occupational healthcare: the dynamic interaction between work and the employee

The field of occupational healthcare is concerned with aspects of risk and safety in relation to the health and well-being of people engaged in work or employment. The aim of occupational healthcare is to provide a safe working environment for the employees, prevent work-related diseases, allow employees with and without limitations to participate, and to improve functioning at work.

With these aims in mind, occupational healthcare is founded in the assumption that a dynamic interaction occurs between the employee and his/her work (see figure 1). Work consists of characteristics that can evoke responses from an employee. These characteristics include the content of the job, the working environment (e.g. presence of chemical or biological factors), the working relations (e.g. relationships with colleagues), and the working conditions (e.g. working times, working contract or rewards). The employee can decide how he or she performs the task, which is not only determined by the chosen strategy or method, but also by the decision of an employee regarding the extent to which he or she wants to deliver the same quality and quantity of output, resulting in a workload for the individual employee (arrow 1 of figure 1). The dynamic interaction implies that whether or not the resulting workload might lead to short- or long-term health effects (arrow 2), which can lead to decreased work functioning (arrow 3), is dependent on the physical and mental capacities of the employee. When the worker’s capacities are sufficient to meet the occupational demands, and the worker has sufficient opportunities to recover, he or she is able to safely perform the work without the occurrence of any adverse health effects or loss of work functioning. However, when the demands of the job exceed the worker’s capacity, signs of diminished health or work functioning become visible. These can be acute or short-term signs, such as an increased heart rate, feeling tired or a change of mood, but also long-term signs like feeling extremely fatigued, showing signs of depression or having problems sleeping. Depending on the duration of the excessive workload and fewer recovery opportunities, a worker might develop work-related health complaints and demonstrate a loss of work functioning.

To prevent work-related health complaints and improve work functioning, one should first focus on eliminating the health risk at work by reviewing the characteristics of work. For example, the introduction of ergonomic measures like hand tools in the construction industry aimed at reducing the exertion required to perform a task, thereby reducing the risk of developing work-related musculoskeletal disorders. In another occupation, trying to reduce the workload through job rotation among refuse collectors resulted in a decreased need for recovery. However, in the case of a job consisting of so-called specific job demands, defined as occupational demands that ‘exceed exposure safety levels or human capacities to meet such demands on a daily basis, leading to increased risk of work-related health problems’, reduction or elimination
of the risk of developing work-related health complaints by focussing on work is often not possible. In that case, occupational health strategies could focus on increasing the physical and mental capacities of the individual employee so that he or she is better able to meet the demands of the job. For example, physical exercises related to the job demands for firemen can serve to increase the physical capacities of the individual fireman to carry their materials for a period of time over a certain distance. Or, building up psychological resilience through counselling aims at improving nurses’ capacities to cope with emotionally demanding situations. However, caution should be taken when trying to increase the individual capacities of employees, keeping in mind that the aim is to support individual employees who lack the required health capacities that could normally be expected of an employee in a specific occupation. Thus, occupational health strategies that aim at reducing the risk of work-related health complaints or reduced work functioning by solely focussing on occupational demands are not appropriate when specific job demands exist, but solely focussing on increasing the capacities of the employee might also not be sufficient or realistic to improve work functioning. When job demands cannot be changed and where a lack of the health requirements to meet these demands can put the safety and well-being of the individual employee and others at risk, occupational health strategies should perhaps focus more on early detection of diminished health or health related work functioning to prevent a loss in work functioning, as is done by a Workers’ Health Surveillance (WHS).

FIGURE 1 Scheme of the dynamic interaction between work and the employee, the work-related health and resulting work functioning, as well as the role of WHS.

Workers’ Health Surveillance

The purpose of a Workers’ Health Surveillance (WHS) is to prevent occupational and work-related diseases and injuries at the individual level. A WHS aims at maintaining or improving the work-related health and work functioning of employees through the early detection of signs of diminished health or reduced work functioning (arrows 4, figure...
as is reflected in the three goals of WHS: i) to prevent the onset, recurrence and/or worsening of work-related diseases; ii) to monitor and promote an individual's health in relation to work; and iii) to monitor and promote work functioning and deployment. The first goal addresses the focus on work by aiming at detecting unfavourable occupational exposures and/or early detection of work-related health complaints. By aiming at the early detection of diminished health, leading to a reduced capacity and threatening abilities to deal with the demands of the task at hand, the second goal of the WHS puts more emphasis on the capacities of the individual employee in relation to their work. The third goal mainly concerns the work-related health of employees with respect to long-term health outcomes.

The WHS can periodically monitor the health effects and work functioning of employees and therefore serves as a strategy for maintaining good work-related health and good work ability. However, in order to achieve the goals of the WHS, the included assessments, tests and instruments should be carefully chosen and based on the specific demands and health effects of the occupation of interest. Whereas historically employees were screened to gather general medical information, a job-specific approach has been advocated widely above a general approach. In a job-specific approach, the focus is on all aspects of health and safety of the worker in a specific job. By taking this approach, it is more likely that the WHS will lead to more valid and relevant results for the monitoring of the employee’s health, which increases the possibility of early detection of health effects that reduce work functioning and affect job performance. In addition, a job-specific approach enables interventions that best fit the occupation of interest, thereby increasing the likelihood of effective interventions to increase work functioning, and prevents employees from having to perform an abundance of screening tests and assessments that have no value in predicting how well they perform their job. Developing a job-specific approach, which requires considerable time and effort, is mainly relevant and efficient for occupations consisting of specific job demands where targeting early signs of diminished health or reduced work functioning, and initiating targeted interventions is desirable to promote safe and healthy job performance.

To create a job-specific WHS, the occupational demands as well as the health- and work functioning problems that might be related to these occupational demands, and which may pose a risk to the worker and other workers, should be investigated for the occupation of interest. The next step is to determine the health requirements based on the special demands, and the health effects that reflect a reduced capacity of the employee, after which appropriate surveillance instruments can be selected for work-related health and work functioning. In the case of early signs of reduced work-related health or loss of work functioning, preventive actions or interventions can be recommended by an occupational physician. These actions can take either the occupational health approach or the worker’s health approach, i.e., either reducing occupational demands temporarily or improving health and work functioning. So far, a job-specific WHS has been developed and evaluated for fire fighters, ambulance workers, hospital nurses and for workers in the construction industry. These are all high-demand jobs with specific job demands that cannot be prevented or may impose
a risk for the health, safety and work functioning of the employee and others, as is the case in healthcare. These studies have shown the job-specific WHS to be a promising strategy to maintain or increase work-related health and work functioning, for example by increasing the number of employees that take preventive measures to ensure good health and work functioning.\textsuperscript{15}

**Work-related health and work functioning of hospital physicians**

Hospital physicians (medical specialists and medical residents) are faced with occupational exposures and job demands that might threaten their work-related health and work functioning. For example, they experience emotionally demanding situations, such as violent behaviour by a patient\textsuperscript{16} (or his/her family) or the death of a patient\textsuperscript{17}, are exposed to bodily fluids\textsuperscript{18} and chemical substances\textsuperscript{19} and/or need to adapt and maintain uncomfortable working postures when performing surgery.\textsuperscript{20} As a result, hospital physicians might develop work-related health complaints. Both psychological complaints, like depressive- or stress symptoms, as well as physical complaints, such as pain in neck, lower back or arms, are present among hospital physicians.\textsuperscript{21-24}

In addition to this reduced health status obviously affecting the well-being of hospital physicians, it might also affect their quality of work and patient safety when their health requirements do not meet the demands of a certain task. For example, hospital physicians with symptoms of fatigue, depressive symptoms or burnout are more likely to make mistakes.\textsuperscript{25-27} As a consequence, their reduced health status also poses a health risk for others and might threaten patient safety.\textsuperscript{28} Imagine a surgeon experiencing symptoms of work-related fatigue due to excessive working hours. He or she is likely to fail meeting the requirement of being alert and responsive to unexpected situations when performing surgery, which increases the risk of making errors, with all the corresponding consequences.\textsuperscript{28} As well as affecting work performance, diminished health might also negatively affect other aspects of work like the quality of interaction with patients and the capacity for showing empathy.\textsuperscript{27,29,30} In order to maintain and improve the quality of care, and to safeguard patient safety, taking care of the work-related health of hospital physicians is important.

When taking into account the fact that employers are legally required to make WHS available for all workers\textsuperscript{31}, an evidence-based job-specific WHS for hospital physicians can serve as an occupational health strategy to prevent reduction of quality of care and putting patient’s safety at risk through the early detection of diminished health and recommendation of appropriate preventive actions. However, until now, the local evidence base of occupational demands and health effects of hospital physicians is lacking. Providing this evidence and developing a job-specific WHS for hospital physicians and medical residents is the first of two objectives of this thesis. International evidence on occupational demands and health effects in the work of hospital physicians obtained by performing a systematic literature review was used as an additional source in addressing the first objective\textsuperscript{32} (see appendix attached to Chapter 4).
CHAPTER 1

Difficulties among hospital physicians in addressing their own work-related health

Once an evidence-based job-specific WHS for hospital physicians has been developed, it should be implemented to investigate whether it will result in the intended outcomes. Does implementation of the WHS actually lead to maintaining good work-related health of hospital physicians? However, before implementing the WHS as an occupational health strategy to take care of the work-related health and work functioning of hospital physicians, it should be investigated whether the target group is actually willing to accept this method of receiving occupational healthcare.

For several reasons, the care needed to address the psychological and physical health complaints of hospital physicians does not seem to reach the target group, resulting in hospital physicians who continue to work while they are sick.\(^{33}\) The present behavioural culture among hospital physicians seems to play a major role here in preventing them from accessing health care. Hospital physicians tend to neglect their own symptoms and/or to trivialize the potential negative effects of their illness and therefore delay or avoid seeking help.\(^{34}\) In addition, they often experience difficulties entering the patient role and, due to issues of confidentiality, also have problems revealing any illness to other colleagues.\(^{35,36}\) This might be especially prevalent in a competitive environment in which taking sick leave is considered a ‘weakness’, resulting in a significant barrier to seeking care.\(^{37}\) As a result, hospital physicians turn to self-diagnosis and self-treatment for both acute and chronic diseases.\(^{34}\) Although there is little consensus among hospital physicians regarding the acceptability of self-treatment of acute or chronic diseases, a culture of self-reliance has already been established.\(^{35}\) It is only when health complaints (and the effects thereof) become inevitably visible to others that hospital physicians tend to turn to healthcare facilities. However, at that point the quality of care and patient safety may have already been jeopardized for a period of time.

Furthermore, hospital physicians might experience difficulties accessing good healthcare, for example because they do not have their own general practitioner or any other source of regular medical care, or because they question the quality of care delivered by colleagues.\(^{38,39}\) In addition, finding a replacement when taking sick leave might be difficult, which mainly applies for physicians working in a partnership or in a private clinic.\(^{40}\) As also holds true for hospital physicians who are employed, considering the long waiting lists combined with a great feeling of responsibility towards both colleagues and patients might prevent hospital physicians from taking sick leave.\(^{33}\)

Hospital physicians have the tendency to continue working even when they feel sick. Four out of every five hospital physicians reported working while having an illness that they would have sick-listed a patient for during the last year.\(^{34,40}\) Thus, before implementing the WHS to address the work-related health and work functioning of hospital physicians, taking into account these cultural attitudes towards taking care of their own health, investigating to what extent hospital physicians are actually prone to adopt the WHS as a measure to look after their own health is considered a necessary first step.
Specific consideration is given to cultural healthcare attitudes among hospital physicians by investigating whether medical students – the hospital physicians of the future – differ in their attitudes regarding healthcare needs and behaviour. The culture of self-prescription and self-treatment is thought to be acquired at medical school as the values, attitudes, behaviour and ethics are shaped by the attitudes and behaviour of teaching hospital physicians, who are looked at as role models.41-43

Because medical students also become increasingly concerned about confidentiality as their medical career progresses41, it is important to investigate to what extent medical students have care needs and to what extent they are aware that a reduced health status might negatively affect their work functioning. Determining their attitudes and healthcare behaviour helps to shape the way the WHS should be implemented in order to increase the odds that the job-specific WHS contributes to having healthy hospital physicians and maintain high standards of care delivery in the future.

Implementation of a job-specific WHS

Two main frameworks of implementation strategies have been distinguished that can guide the implementation of an intervention – the rational framework and the participative framework.44 When applying the rational framework to the implementation of the job-specific WHS for hospital physicians, medical directors or the general board of a hospital take the initiative and guide the implementation because they believe the intervention is desirable and benefits the organisation and the individual hospital physician. A potential risk of this approach is that the needs of the target group are neglected. This is not the case when following the participative framework approach, since here the implementation of an intervention is driven by the employees and occurs slowly, taking into account the knowledge and needs of the employees.45 Combining these two approaches, Grol and Wensing46 have proposed an implementation strategy that recommends that medical directors or the general board take the initiative for implementation. However, they recommend an analysis of the context in which the implementation is to take place to reduce the odds that the target group will reject or hinder the implementation, because implementation of an intervention is thought to be more effective when it aligns with the habits and routines of the target group.47 In order to assess the contextual factors and overcome the (cultural) difficulties that might arise when implementing the intervention, performing a feasibility study is considered relevant and necessary to tailor the procedure of the WHS to the needs and habits of the target group. A feasibility study serves to determine whether an intervention, such as the job-specific WHS, is appropriate for further testing, especially when the population or intervention target might need unique consideration.48

The feasibility study should result in a WHS that is suited for testing its effectiveness in the real world. Most evidence-based recommendations for behavioural interventions are derived from controlled trials, which reduces the external relevance and generalizability.49 In order to specifically test the fit of the WHS in the real-world setting, the primary focus should be on factors that either limit or support the implementation of
the intervention before testing its effectiveness. These factors can relate to characteristics of the intervention, of the target group or of the organisation. To that extent, the feasibility study consists of testing components of the intervention among a small number of individuals and may involve adapting the intervention and the materials used to the local population and to the environment. The evaluation is primarily qualitative and focusses on determining whether the intervention was delivered as planned and whether it is accepted by the target group. With these aims in mind, the second objective of this thesis is to evaluate whether the developed job-specific WHS for hospital physicians and medical residents is feasible and acceptable.

Aim, objective and research questions

The aim of this thesis is to develop and implement a job-specific WHS for hospital physicians, which lead to the following two objectives:

i. To provide evidence for a job-specific WHS for hospital physicians; and
ii. To evaluate whether the developed job-specific WHS for hospital physicians is feasible and acceptable.

To address these objectives, the following research questions were formulated:

1. What are the occupational demands and work-related health effects, and resulting work functioning effects, of hospital physicians?
2. What are the steps necessary to create the content of the job-specific WHS?
3. Is the new job-specific WHS feasible and acceptable?
4. What are the care needs of future hospital physicians?

Outline of this thesis

The first two chapters address the first research question of this thesis and provide an evidence base for a job-specific WHS for hospital physicians. A cross-sectional study describing the prevalence of common mental disorders among hospital physicians and investigating their association with self-reported work ability is reported first (Chapter 2). The next chapter describes the physical job demands and related health complaints of hospital physicians (Chapter 3).

The second research question is addressed in Chapter 4, where we describe both the steps that should be taken to arrive at a job-specific WHS as well as the content of the job-specific WHS for hospital physicians. In the following chapter (Chapter 5), the results of the feasibility study are reported, answering our third research question concerning whether the new job-specific WHS for hospital physicians is considered feasible and acceptable. To investigate future acceptability, Chapter 6 describes the current and future care needs of future hospital physicians and addresses the fourth research question.

The closing Chapter 7 reveals the main findings of this thesis, followed by a general discussion and recommendations for research and practice.
References


