SUPPORTING WORK

PARTICIPATION OF PEOPLE WITH A CHRONIC DISEASE

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The studies described in this thesis were carried out at the Academic Medical Center - University of Amsterdam, department: Coronel Institute of Occupational Health, Amsterdam Public Health research institute, Amsterdam, the Netherlands.

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CHAPTER 1

General introduction

General introduction

Chronic disease: Diagnosis and prevalence

In the European Union, 28% of working-age people (18-65 years old) have chronic diseases [1]. Next to a large number of working-age people having a chronic condition, the number of people with a chronic disease increases [2]. A first reason is that through advances in medical treatments and rehabilitation, formerly lethal diseases have become chronic [3,4]. Second, the prevalence of people with unhealthy lifestyles is rising, which largely influences the development of various chronic diseases, such as diabetes, heart diseases and cancer [5]. Finally, because the prevalence of chronic diseases is higher in older people [1], the raising of the pension age in many Western countries increases the total number of people with a chronic disease in the working population. Consequently, a large and increasing number of people of working age are faced with a chronic disease.

In the present research, chronic diseases were defined as diseases that last for three months or longer and are characterised by lasting or recurring symptoms and limitations [6] without signs of recovery [7]. This is in line with the definition of the World Health Organization (WHO), which defines a chronic disease as a 'medical condition or disease which is non-infectious and characterised by a long duration and slow progression' [6].

Chronic disease and work participation

Not only do a significant number of the working-age population have a chronic disease, but also a substantial number of the working population with chronic diseases experience limitations due to their condition [5]. Examples are fatigue, pain or lack of concentration, which limits individuals' ability to perform work tasks [8-11]. As people's ability to participate in work is negatively affected by their condition, either maintaining work or returning to work can be a problem [12]. Research shows that people with a chronic disease are less often employed [12-14] and on average work fewer hours in comparison with the general population [12]. In this thesis, we use the term 'work participation' in two ways, namely to refer to people with chronic diseases who 1) remain at work or 2) return to work (RTW) doing the same or another job.

Value of work participation

Although having a chronic disease can negatively influence participation in work, individuals highly value the ability to participate in work [15] and report work participation to be an important rehabilitation goal [8,16]. Participating in work enhances both mental and physical health [15,17] and generally contributes to a higher quality of life [18], as work provides social contacts, structures everyday life, distracts from the chronic disease [15] and provides a sense of belonging and self-worth [19]. In addition, people with a chronic disease see the ability to participate in work as indicative of 'returning to normality' [15,16,20] and as a sign that everyday life has been restored [21]. Since work contributes to an individual's life and is highly valued, it is important for professionals to support an individuals' ability to participate in work.

Factors influencing work participation

Work participation with a chronic disease has been the subject of much research and multiple factors influencing the work retention (WR) or RTW of people with chronic diseases have been reported [22-25]. Many of these factors are not related to the specific diagnosis of the individual [26,27]. In addition, research shows that several of these factors, such as age, gender or motivation to RTW, influence work participation amongst people with different diagnoses, such as cancer and rheumatic diseases [9,11,23]. This indicates that there are factors that influence work participation, independent of the specific diagnosis.

Since factors are primarily researched within a sample of people with a specific diagnosis, insight into which factors influence work participation independent of diagnosis is lacking. An overview of these factors independent of diagnosis can provide insight into all factors that possibly have an influence, and can serve as a first step in exploring which specific factors influence individuals' work participation.

Interventions to enhance work participation

After gaining awareness of factors that influence individuals' work participation, interventions can be implemented to change the effect of negatively or positively influencing factors. Although some of the influencing factors are impossible to change, for example 'older age' or 'female gender', they may serve as a signal to target specific groups that need extra guidance by or attention from occupational health professionals (OHPs). However, other factors, such as 'social support', 'recovery expectations' and 'motivation to RTW', may be amenable to change.

Several studies have focussed on the effectiveness of occupational health interventions in populations with specific chronic diseases, for example interventions in individuals with low back pain [28], arthritis [29] or cancer [30]. These interventions often involve similar strategies or elements, either as a single intervention or as part of a programme, such as job accommodations, encouragement, education, empowerment or self-management strategies [28,29,30]. The similarity of these interventions or elements thereof for people with different diagnoses, implies that the use or effectiveness of an intervention does not depend on the specific diagnosis. This indicates that interventions can be used in a broader population that has different types of chronic diseases. However, as most research is conducted on interventions including people with a specific diagnosis, evidence on effective interventions applicable for a broader population is lacking.

Research shows that the longer sickness absence lasts, the less likely people are to RTW [31]. Professionals should therefore strive to implement the intervention as early as possible. Information on effective generic approaches can support professionals to consider interventions that can serve as a first step in the process of supporting work participation. In addition, a generic approach can also be deployed in specific diagnoses in which evidence of effective interventions is lacking.

Role of individuals with chronic diseases in their participation in work

In addition to the use of interventions deployed by professionals, we also researched the role that individuals have in their work participation. This approach is in line with the idea that people are expected to play an active role in their participation in work [32,33]. In the Netherlands, for example, a person on sick leave discusses a plan of action regarding returning to or

retaining work, together with the responsible OHP and the employer [34].

Exploring the perspectives of people with chronic diseases helps to provide a range of solutions and indicates the need for support to find and use these solutions. These results can provide OHPs with input on which solutions are available and might be beneficial for their clients to participate in work. These insights into solutions could also facilitate the involvement of people with a chronic disease, which can lead to individuals' greater acceptance of and higher compliance with the guidance and assessment given by the OHP [35,36]. Based on the information concerning the need for support reported by individuals with chronic diseases, OHPs can adapt their guidance and assessment more closely to the needs of people with a chronic disease to support their participation in work.

Supporting work participation of people with chronic diseases

In the Netherlands, two types of OHPs are responsible for providing support and guidance to people with a chronic disease: occupational physicians (OPs) and insurance physicians (IPs). Both OPs and IPs focus on the issues regarding the disturbance of the balance between participation in work and the individual's health. Obtaining insight into the individual's functional abilities regarding participation in work is an essential part of their daily work [36,37]. OPs provide guidance to help individuals retain or return to work, in general up to a maximum period of two years of sick leave. Employees who are on sick leave for over two years can claim a disability benefit at the Dutch Social Security Institute: the Institute for Employee Benefits Scheme (UWV). For this claim, IPs assess and evaluate the extent and prognosis of work ability of the individuals. Thereafter, the degree of disability is determined based on the loss of income, by determining the worker's original income and the income that he or she can theoretically earn doing work that fits with the remaining functional abilities.

Although OHPs are professionally educated and generally equipped to guide and evaluate people with a chronic disease to participate in work, research shows that they sometimes have questions regarding their approach of supporting people with a chronic disease, or they lack information that would enable them to provide optimal guidance to their clients [38]. Since research shows that providing OHPs with evidence and information improves the quality of the care they provide [39], the first part of this thesis focuses on

evidence concerning the work participation of people with chronic diseases. Evidence on factors, effective interventions and the role of people with chronic diseases in work participation is researched to facilitate OHPs in their guidance and assessment of people with a chronic disease.

Use of evidence by OHPs

Although evidence is available to facilitate OHPs in their guidance and assessment of people with chronic diseases, the evidence is scattered amongst various publications and is not easy for professionals to access. OHPs lack a clear and manageable overview on the evidence and what they can do in practice to optimise their guidance and assessment of people with a chronic disease. Therefore, the retrieved evidence was included in a guideline to facilitate a more standardised, evidence-based guidance and assessment of people with a chronic disease [40]. Based on the included evidence, recommendations were formulated to provide hands-on information on what OHPs can do to optimise the guidance and assessment of people with a chronic disease regarding participation in work.

The use of these recommendations can positively influence the quality of guidance provided by OHPs to their clients [41,42] and can support the work participation of individuals with a chronic disease [43-45]. However, previous studies show that the use of the recommendations by OHPs is generally low [46-48]. Health professionals indicate various barriers as the reason for this low usage, related to knowledge, attitude and behaviour [49-52]. Examples of these barriers are a lack of familiarity with the evidence [49-52], the evidence being too rigid to apply in individual situations [49], and a lack of motivation to use or a negative attitude towards using new information in practice [49-52]. In addition, external barriers are reported such as not having enough resources (time, money) to use the information [49-52], which limits the uptake of the evidence in practice.

In addition, previous research shows that simply disseminating relevant information to OHPs is not enough to ensure that they use it in their work [46-48]. OHPs need to actively change their behaviour towards using the evidence in their daily practice. Previous research shows that active interventions are effective to overcome barriers and to change OHPs' behaviour in using the evidence included in the guideline [53,54]. In the second part of the thesis, the focus is therefore on the development and

evaluation of a training programme that focuses on facilitating the use of the evidence in practice, in order to optimise OHPs' guidance and assessment of individuals with a chronic disease.

Changing OHPs' behaviour to increase the use of evidence

In order to use the evidence in daily practice, a change in OHPs' behaviour is needed. The 'Behaviour Change Wheel' developed by Michie et al. [55] provides an insight into how to achieve such a behaviour change (see Figure 1) and served as a guide for the steps taken in the present research. The model includes three levels, containing conditions, intervention functions and policy modalities (see Figure 1). Per level, one or more items that are most likely to be effective in changing the key behaviour can be selected [55].

As a first step, Michie et al. [55] state that 'key behaviours' should be determined, which are specified as 'who should adapt their behaviour at what moment, in what manner and in which situation'. In this thesis, the focus is on facilitating OHPs to adapt their behaviour in using the content of the recommendations in their guidance and assessment of people with a chronic disease. In addition, the model states that key behaviours should be selected based on the impact the behaviour has, the likelihood that the selected behaviour will be implemented and whether there are other influencing factors to consider regarding the behaviour. Therefore, in this research, the recommendations were prioritised by OHPs on the current level of use and priority. The aim of this was to get an overview of which recommendations are key in the behaviour change.

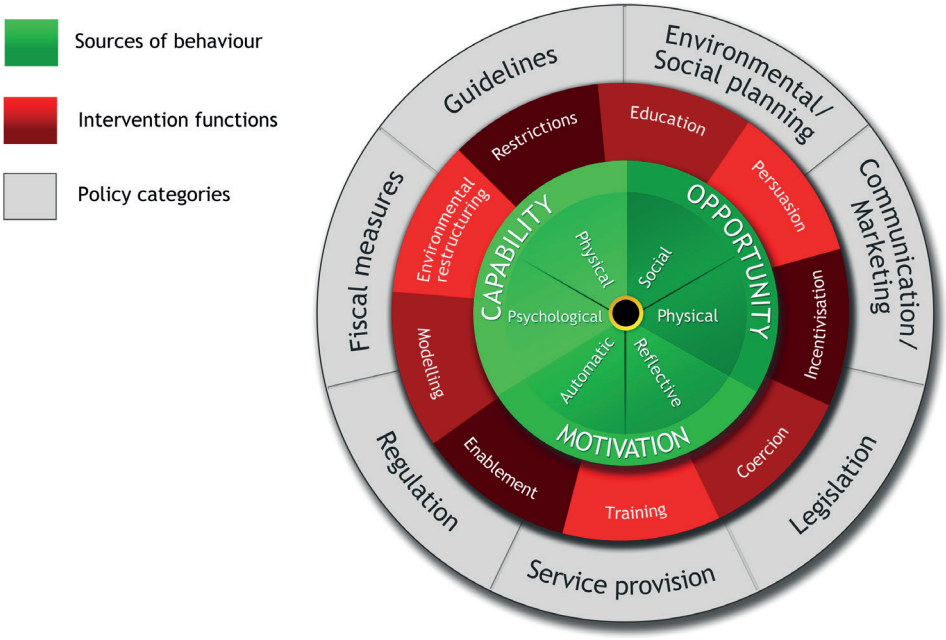
After OHP's selecting the key behaviours, Michie et al. [55] indicate that one should select which changes should be made to achieve the desired behaviour. According to Michie et al. [55], behaviour change requires the use of three conditions, namely capability, motivation and opportunity. Capability is the 'psychological or physical ability to enact the behaviour' ('Do OHPs know how to use the guideline?), motivation is the 'reflective and automatic mechanisms that activate or inhibit behaviour' ('Do OHPs plan to use the guideline, do OHPs believe that the guideline benefit them and people with a chronic disease, do OHPs want to use the guideline, can OHPs develop a habit of using the guideline?') and opportunity is the 'physical and social environment that enables the behaviour' ('Do OHPs have the guideline and are they supported to use the guideline?'). In order to overcome barriers to

the use of evidence, such as a lack of or unfamiliarity with the evidence, or not knowing how to apply the evidence in practice [50-52], Michie et al. [55] indicate that at least one of three components (capability, motivation, opportunity) should be changed to obtain successful behaviour change. In this thesis, the focus is on the condition 'capability' ('Do OHPs know how to use the guideline?') in order for OHPs to use the recommendations in their guidance and assessment of people with a chronic disease.

This change can be made through the use of one or more of the nine 'intervention functions' [55]. These intervention functions include either one or more activities through which the behaviour (i.e. use of evidence) can be changed. The nine intervention functions are education, persuasion, incentivisation, coercion, training, enablement, modelling, environmental restructuring, and restrictions. Since this thesis concerned OHPs' capability, we focused on the increase in OHPs' knowledge and skills. As the Behavioural Change Wheel shows that knowledge can be provided through the intervention function 'education' and skills can be provided by the intervention function 'training' [55], we chose to focus on providing the interventions 'education' and 'training' to increase OHPs' use of recommendations in practice.

After selecting one or more intervention functions, Michie et al. [55] reported several 'policy modalities' through which the intervention functions can be delivered to the population. Available policy modalities are: environmental/social planning, communication/marketing, legislation, service provision, regulation, fiscal measures, and guidelines. As the recommendations were part of a developed guideline, this thesis focuses on a guideline as a policy modality.

Figure 1. The Behaviour Change Wheel: A new method for characterising and designing behaviour change interventions, developed by Michie et al. [55]



Thesis objectives and research questions

The following were the two main research objectives:

A. To obtain an overview on which factors and interventions influence the work participation of people with a chronic disease, independent of the specific diagnosis.

B. To evaluate how the use by OHPs of evidence included in a guideline can be facilitated in order to optimise the guidance and assessment of people with a chronic disease regarding work participation.

These objectives led to the following research questions:

1. Which factors affect the work participation of people with a chronic disease, independent of their diagnosis?

2. Which effective interventions can enhance the work participation of people with a chronic disease, independent of their diagnosis?

3. What role do people with a chronic disease have in improving their participation in work?
4. Can a training programme increase OHPs' use of the guideline recommendations in their guidance and assessment of people with a chronic disease regarding their work participation?

Thesis outline

Chapter 2 presents evidence on the factors associated with the work participation of people with chronic diseases gathered through a systematic review. This evidence provides the answer to research question 1. Because we wanted to gather evidence that is applicable to various chronic diseases, we labelled factors or interventions as 'independent of diagnosis' when they were found in two or more disease categories. For example, if 'expectancy to RTW' was associated with both rheumatic diseases and depression, we considered it to be independent of diagnosis.

To zoom in on the personal and work-related factors that influence the work participation of people with a chronic disease, we examined the values that people with a chronic disease attach to participating in work. We also explored what aspects of their work motivate or demotivate them. The answer to research question 1 is provided in **Chapter 3**.

Chapter 4 focuses on which interventions are effective in enhancing the work participation of people with chronic diseases, independent of diagnosis. This information was obtained through the performance of a systematic review of systematic reviews, which provided an answer to research question 2.

Chapter 5 presents the perspectives that people with a chronic disease are explored on the solutions they use in order to participate in work, and what support they need to find and implement these solutions to stay in or return to work. This chapter answers research question 3.

In **Chapter 6**, the focus is on the development of a training programme to facilitate the use of the knowledge and skills in daily practice. To develop the programme, OHPs' training needs were explored. Thereafter, the perspectives that experts in the field of education have on relevant teaching methods were investigated. Chapter 6 provides the answer to research question 4.

Chapter 7 focuses on the feasibility of the training programme and how it affects the knowledge and skills of OHPs regarding the use of the recommendations in their guidance of people with a chronic disease. This chapter answers research question 4.

In closing, **Chapter 8** presents a general discussion. Here, the main findings of the research are summarised and interpreted. Additionally, methodological considerations, implications for future research and recommendations for practice are discussed.

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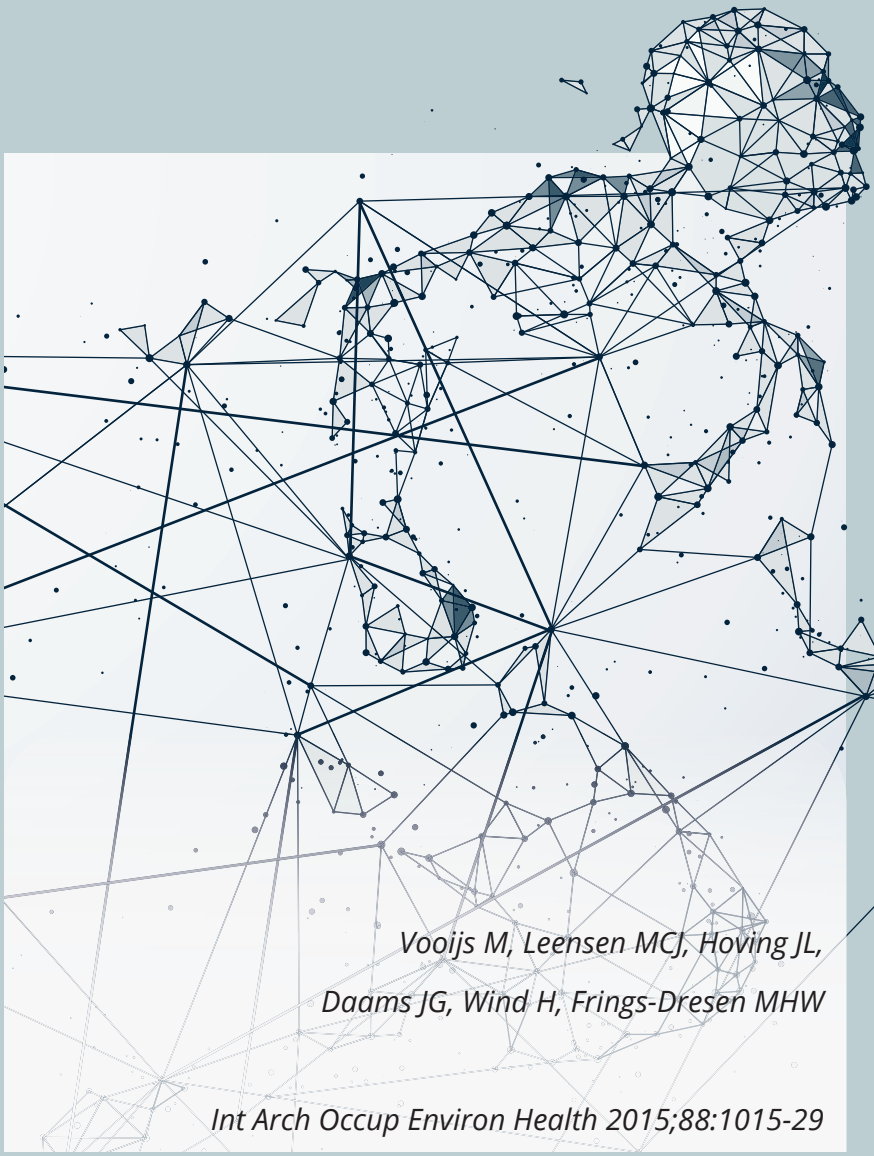
CHAPTER 2

Disease-generic factors of work participation of workers with a chronic disease: A systematic review



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Abstract

Purpose: The purpose of this review was to search systematically for disease-generic factors associated with either work retention (WR) or return to work (RTW) in people of working age with a chronic disease.

Methods: An extensive search was performed in PubMed, EMBASE, PsycINFO and CINAHL for English-, Dutch and German-language studies searching on synonyms of the terms chronic disease, WR and RTW. Studies were selected if they described factors related to WR or RTW and included participants with a chronic disease of working age (15-67 years old).

Results: From 2597 hits in the electronic databases, we identified six studies reporting 23 factors associated with work participation. Categorized according to the International Classification of Functioning, Disability and Health, health-related factors (comorbidity, duration of symptoms and less dysfunction), environmental factors (work environment and duration of absence) and personal factors (age, gender, education and own prediction of RTW) were identified.

Conclusions: Various disease-generic factors are associated with work participation, of which most of the reported factors are independent of diagnosis. Evidence of the retrieved factors is restricted due to the limited availability of studies focusing on disease-generic factors and overall low quality of the retrieved studies.

Introduction

Chronic diseases, defined by the World Health Organization as “diseases with long duration and generally slow progression” [1], are the leading cause of morbidity worldwide [2]. In 2011, approximately 29% of the male population and 34 % of the female population aged 16 years or over in the European Union reported having a chronic illness. In the working population, the prevalence of having one or more chronic diseases ranges from 10% (16-24 years) to 55% (55-64 years) [3]. Due to enhanced treatment, which improved the survival rates of patients with various diagnoses [4], and an increase in incidence of diseases due to unhealthy lifestyles [5], increasing numbers of people in the working population are affected by one or more chronic diseases.

Having work is beneficial for health status, since it improves functional outcomes, social integration and satisfaction with life status and financial status [6]. Previous studies showed that having a chronic disease affects work participation negatively; people with a chronic disease are less often employed [7,8] and, when they are employed, work on average fewer hours [9] than the general population does. In addition, employees with a chronic disease report having difficulties meeting work demands [9,10]. If, however, factors that hinder or promote WR and RTW could be identified, these factors could be considered in interventions whose aim is to improve work participation.

WR focuses on preventing work loss in workers with a chronic disease. This is important because employees experience RTW as being difficult once absent from work [11,12]. However, sometimes sickness absence is inevitable which is, if possible, followed by re-entry in the same job or a different one after a period of sickness absence. Encouragement and early intervention in targeted subgroups of workers are important factors, since the longer the sickness absence lasts, the less likely people are to RTW [13].

Previous research has shown that some people manage to stay at work or RTW, where others with the same disease and prognosis do not [14-16]. This indicates that besides disease-related factors, other factors could influence work participation of patients with various diagnoses, i.e., disease-generic factors. This is reflected in the International Classification of Funtioning, Disability and Health (ICF) that describes mutual interactions between six different dimensions, showing that participation is not only

affected by disease-related factors but also affected by personal and environmental factors, which are independent of diagnoses [17]. A previous review did address these disease-generic factors in relation to work disability, in which it was found that perceived complaints, limitation in physical activities, heavy manual work and female gender were associated with work disability [18].

In this systematic review, we want to broaden the applicability of disease-generic factors by placing no limit on the chronic diseases to be included. Instead, we searched for studies that examined study populations with a variety of chronic diseases. Moreover, to our knowledge, no systematic review has been previously conducted in order to search for disease-generic factors associated with WR or RTW specifically. The purpose of this systematic review is therefore to answer the following question: Which disease-generic factors are associated with WR or RTW of people of working age with a chronic disease?

Materials and methods

During the development of this review, we strived to address all items reported in the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement [19].

Search strategy

The literature search aimed to identify all published papers that studied factors associated with WR or RTW in people of working age with a chronic disease. The first author (MV) and an experienced clinical librarian (JD) performed an extensive search in March 2014 in PubMed, EMBASE, PsycINFO and CINAHL, using MeSH terms, subheadings and free text words. Since our aim was to retrieve studies, which included a study sample with various diagnoses, we searched on synonyms of the term “chronic disease,” in combination with terms related to the outcome variables. A full description of the literature search is presented in Appendix 1. The strategy was formulated in PubMed (MEDLINE) and was adapted for the use in EMBASE (OvidSP), PsycINFO (OvidSP) and CINAHL (EBSCOhost). The search was limited to articles with a publication date ranging from January 2004 to March 2014. The references of all included studies were screened for additional relevant

publications, which were checked according to the original search terms in order to retrieve studies with a study sample of various diagnoses.

Selection of studies

Citations and abstracts of all studies were retrieved, and duplicates were removed. Selection of the studies was performed in two rounds; the first round consisted of the title and abstract screening in which the first author (MV) screened all the retrieved records. Four authors (ML, JH, HW and MF) each screened a quarter of the records independently regarding whether the records reported a chronic disease, used an adequate study design and used WR or RTW as an outcome. If the title and abstract failed to meet one or more selection criteria, the publication was excluded. When there was no sufficient information in the title and abstract to judge eligibility, the full-text article was retrieved. In the second round, full-text articles were ordered and studies were selected based on all defined criteria by the first author (MV) and second author (ML). We included reviews, cohort studies (both prospective and retrospective), cross-sectional studies and case-control studies, which searched for factors associated with the outcomes WR or RTW. We defined WR as preventing work loss or staying employed. RTW was defined as re-entering employment in the same job or a different one after a period of sickness absence. We included studies in which the participants were of working age (15-67 years) and had a chronic disease for more than three months, following the definition of chronic disease according to the National Centre for Health Statistics [20].

Only papers written in English, Dutch or German to which we had access to both abstract and full-text article were considered for inclusion in this review. The original studies of the reviews which were included in full-text selection were retrieved and screened on title and abstract and, if the selection criteria were met, on full text. Disagreements during the process of selecting were resolved by obtaining consensus during a weekly meeting with the reviewers. For practical considerations, papers were not blinded for authors, institutions, journal, results or conclusions.

Quality assessment

Two reviewers (MV and JH) independently scored the quality of the included studies using an adapted version of the Methodological Evaluation of Observational Research checklist [21], derived from Robroek et al. [22] and Ijaz et al. [23]. Criteria addressed were study design, loss of follow-up or non-response, standardized or valid measurement of both outcomes and factors, measurement of confounding factors and methods to reduce bias. When the criterion was sufficiently met, it was scored as 1. When the criterion was not sufficiently met or not reported, it was scored as 0. It was decided that the study had to meet four of the six criteria in order to obtain the label "of sufficient quality." Disagreements between the two reviewers were resolved through consensus. If agreement was not reached, the fifth author (HW) made the final decision.

Data extraction

The first reviewer (MV) performed the data extraction using a standardized form that included items on demographic characteristics of the study population (age, gender and chronic disease), study design, sample size, outcome measures concerning WR and RTW, factors associated with outcome and estimated effect size. Data extraction was checked by four reviewers (ML, JH, HW and MF). When performing the data extraction, we reported the associations observed in the multivariate model. When a prediction model was used, the univariate associations were reported in order to retrieve the independent associations. When multiple models were estimated for different outcomes, we used the model that matched our outcome as closely as possible. Data were extracted for all factors, including the factors that were specifically aimed at one specific disease (e.g., "primary type of dialyses"). However, it was decided not to include this data in the further description of the results. The data extraction can be found in Appendix 2.

Results

Selection of studies

The search yielded 4281 unique records: 1463 from PubMed, 1932 from EMBASE, 302 from PsycINFO and 584 from CINAHL. After duplicates had been removed, 2,597 articles were identified. Based on title and abstract,

2477 articles were excluded, mostly because their outcomes did not match WR or RTW. From the 120 remaining articles, five studies and seven reviews were selected. Checking the original studies of the included seven reviews did not yield any additional studies. Reference checking of the five included studies revealed one new article. This resulted in a total of six studies that met the inclusion criteria and were included in this review, five studies with WR as their focus and one study whose topic was RTW. The results of the literature search are presented in Fig. 1. The summary of the methodological ranking for each study is presented in Table 1. As can been seen from Table 1, of the six studies, two studies were rated as sufficiently meeting the quality criteria.

Figure 1. Flowchart selection of studies

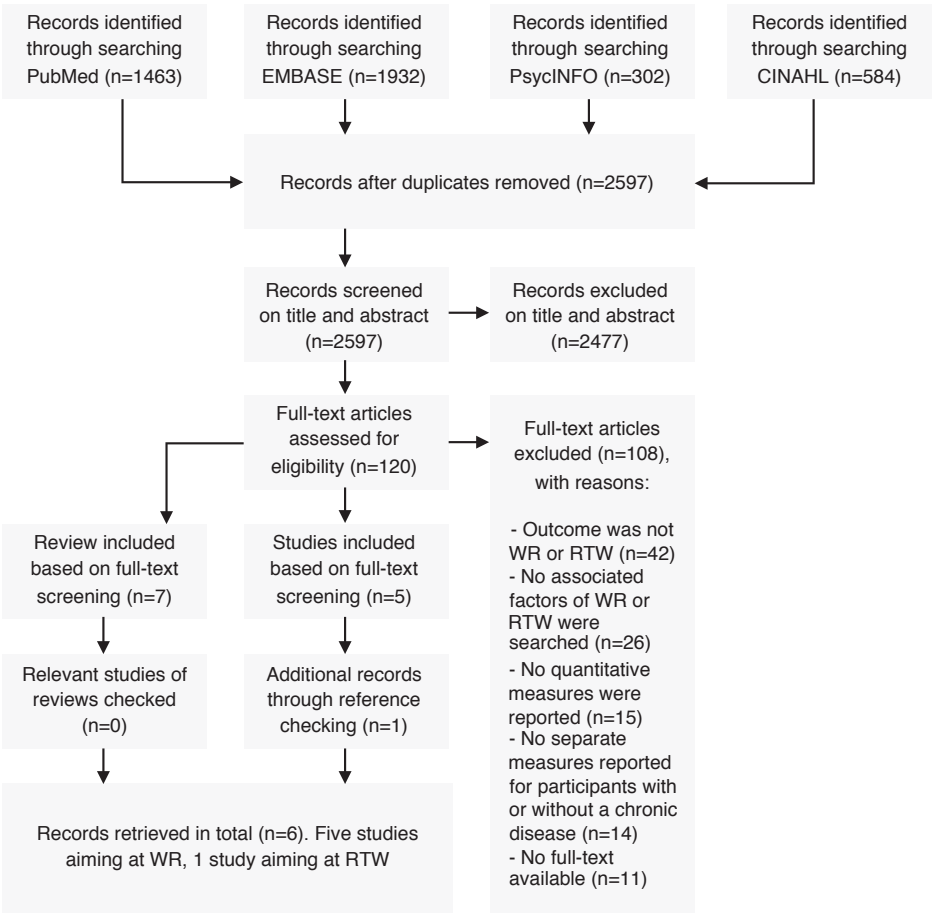

Table 1: Quality assessment of the six included studies.

Design				Outcome	Factors	Confounding	Analysis	Total
Author (year)	Q1 Study design[a]	Q2a Loss to <20% follow-up[b]	Q2b <20% non-response[c]	Q3 Valid measure-ments[d]	Q4 Valid measure-ments[e]	Q5 Reporting and valid measurements[f]	Q6 Methods bias reduction[g]	Sufficient quality or insufficient quality
Botticello [24]	0	NA	0	1	1	1	1	Sufficient
Calsbeek [25]	0	NA	0	1	1	0	0	Insufficient
Heijbel [26]	1	1	NA	1	1	0	0	Sufficient
M. Uccelli [27]	0	NA	0	NR	0	0	0	Insufficient
Muehrer [28]	1	0	NA	0	0	0	0	Insufficient
Baanders [29]	0	NA	0	NR	1	1	1	Insufficient

NA = not applicable, NR = not reported.
[a]= Cohort design: 1, other than cohort design, unclear or not reported: 0.
[b]= Number of drop-outs/loss to follow-up ≤20%: 1, number >20%, unclear, not reported or other study design: 0.
[c]= ≤20% of nonresponse differed among cases and controls: 1, >20% of nonresponse differed among cases and controls or >20% of nonresponse reported for cases only, unclear, not reported or other study design: 0.
[d]= Outcome measures are measured in a standardized or valid way: 1, outcome measures are measures in a non-standardized or non-valid way, unclear, not reported: 0.
[e]= Factors are measured in a standardized or valid way: 1, factors are measures in a non-standardized or non-valid way, unclear or not reported: 0.
[f]= Major confounding factors were assessed in full and measured in a validated way: 1, major confounding factors were not assessed, unclear or not reported: 0.
[g]= Authors reported using methods to reduce bias: 1, authors did not use methods to reduce bias, unclear, not reported: 0.

Data analyses and outcomes

Regardless of the analysing methods used, all studies reported one or more factors statistically significantly associated with the outcomes WR and RTW. As data analyses varied considerably, direct comparisons between studies presenting absolute point estimates and studies presenting regression parameters are less informative. We considered the pooling of the results as not being useful, due to the heterogeneity in study quality and studied factors between the studies. For this reason, we evaluated the results of the study in a qualitative way and described the factors according to the ICF model.

Work retention

Five studies were retrieved regarding WR, of which one study was of sufficient quality. Factors associated with WR are listed in Table 2. Regarding the ICF dimension of personal factors, two studies found that female gender ($p < 0.01$, neg.; OR 0.78, 95% CI: 0.74–0.81) and older age were negatively associated with WR. Age reduced the chance of WR when being over 55 years old (55-59 years old, OR: 0.87, 95% CI: 0.82-0.93 and 60-64 years old, OR: 0.89, 95% CI: 0.82-0.97) and being 20-24 years of age (OR: 0.85, 95% CI: 0.75-0.97). On the other hand, being 25-44 years old was positively associated with WR ($p < 0.01$[a]). Also, a lower educational level, race, substance use, use of medication and nocturnal toilet use were found to be negatively associated with WR. Having a higher socioeconomic status (SES) index was positively associated with WR. Other factors associated with WR, using the ICF model, were comorbidity and experiencing motor control problems (body function/structure dimension). Also, inability to ambulate (activity dimension), living in an urban area, workplace environment and financial considerations (environmental dimension) were reported to be associated with WR.

Return to work

In the one study using RTW as an outcome, having a younger age (≤44 years old, OR: 2.48, 95% CI: 1.43-4.31) and the sick-listed persons' own prediction of their RTW (OR: 15.99, 95% CI: 6.86-37.25) were reported to be positively associated with RTW. Other factors associated with RTW, in terms of ICF dimensions, are as follows: complaints from not more than one group of symptoms, duration of complaints <5 years, less pain and less impairment (body function/structure dimension), shorter duration of sick leave (participation dimension) and, regarding the environmental dimension, the perception of feeling welcome back at work (see Table 2).

Table 2. Characteristics of the six included studies

	First author, year, (reference), country of origin	Heijbel, 2006, Sweden	Baanders, 2002, The Netherlands	Botticello, 2012, USA
Participants:	Study design	PC	CS	CS
	Sample size	508	1266	1013
	Gender (F%)	90.9	56.5	19.1
	Range of age (mean, SD)	24-64 (50[a], NR)	15-64 (NR, NR)	17-64 (41.2, NR)
	Chronic disease	Musculoskeletal pain (33.7%[b]), mental distress (15.6%[b]), respiratory disorders (1.9%[b]), cardiovascular disorders (1.5%[b]), other (i.e. neurological disorders, factures, diabetes, 12.0%[b]), combination of disorders (35.2%[b])	Cardiovascular disease (7.7%), chronic nonspecific lung diseases (18.6%), locomotor disease (15.0%), cancer (5.1%), diabetes mellitus (10.4%), neurological disease (9.1%), digestive disorder (3.5%), other (30.6%)	Spinal cord injury; paraplegia (53.2%), tetraplegia (46.8%)
	Employment at baseline (%)	100	45.1	63.4
Outcome:	Definition	RTW, defined as work status on the 18th month after baseline. Persons who had returned (part-time) and were working for <15 days during the 18th month were counted as returners	WR, defined as labour market participation is defined as having a paid job for at least twelve hours per week	WR, defined as employment status, assessed at least one follow-up. The variable was dichotomized as 'paid employment' 'yes' (category: 'working') and 'no' (remaining categories)
	Measurement	Human Resources departments in 5 municipalities and 4 county councils	Postal questionnaire	Telephone interview

	Calsbeek, 2005, The Netherlands	**Messmer Uccelli, 2009, 18 European countries.**	**Muehrer, 2011, USA**
	CS	CS	RC
	246	1141	102104
	58.2[b]	67	NR
	15-24 (20.1, NR)	21-67 (41.8, 9.2)	15-64 (NR, NR)
	Inflammatory bowel disease (49.2%), chronic liver diseases (11.7%), congenital digestive disorder (17.6%), food allergy (9.4%), celiac disease (12.1%)	Multiple sclerosis	Chronic kidney disease, end-stage renal disease (ESRD)
	NR	61	NR
	WR, defined as labour participation, assessed by the number of hours employed per week which were dichotomized in 'having a paid job' (<12 h/w) vs. 'not having a paid job')	WR, defined as employment status; differentiating between employed or not employed	WR, defined as maintaining employment. Person's inability to maintain employed was identified when, at initiation of treatment, persons changed employment from full- to part-time or to any other status
	Postal questionnaire	Questionnaire	United States Renal Data System (USRDS)

	First author, year, (reference), country of origin	Heijbel, 2006, Sweden	Baanders, 2002, The Netherlands	Botticello, 2012, USA
Factor:	Factor	1. Age (UV) * ≤ 44y * 45-54y 2. Own pos. prediction RTW 3. Complaints >1 group symptoms 4. Duration complaints ≤5y 5. Duration sick leave <1y 6. Less pain: * 1st quartile (r: 4th quartile), * 2nd quartile (r: 4th quartile) * 3rd quartile (r: 4th quartile) 7. Less impairment: * 1st quartile (r: 4th quartile) * 2nd quartile (r: 4th quartile) 8. Perception welcome at work	1. Female gender 2. Age (25-44y) 3. Lower educational level: * Primary * Lower 2nd + vocational 4. Motor control problems	1. > Socio-economic status (SES) index 2. Urban living
	Effect	1. * 2.48 [1.43, 4.31] * 2.18 [1.30, 3.67] 2. 15.99 [6.86, 37.25] 3. 2.01 [1.29, 3.13] 4. 1.75 [1.12, 2.72] 5. 2.67 [1.76, 4.05] 6. * 3.73 [1.84, 7.55] * 5.51 [2.74, 11.07] * 2.23 [1.06, 4.70] 7. * 2.70 [1.41, 5.16] * 2.05 [1.06, 3.97] 8. 1.92 [1.23, 2.99]	1. $p < 0.01$, neg. 2. $p < 0.01$, pos. 3. * $p < 0.01$, neg. * $p < 0.01$, neg. 4. < 0.01, neg.	1. 1.09 [1.04, 1.14] 2. 0.46 [0.23, 0.93]
	Measurement	Postal questionnaire (n=520), telephone interview (n=5)	Postal questionnaire	National Historical Geographical Information System, 2000 US Census Summary File

CS = cross-sectional study, PC = prospective cohort, RC = retrospective cohort,
UV = univariate measurement, MV = multivariate measurement, NR = Not reported, r = Reference category
a = Median of population at baseline, b = Statistics of population at baseline

Calsbeek, 2005, The Netherlands	**Messmer Uccelli, 2009, 18 European countries.**	**Muehrer, 2011, USA**
1. Use of medication (UV) 2. Nocturnal toilet use	1. Workplace environment 2. Financial considerations	1. Age: (MV) * 20-24y * 55-59 * 60-64 2. Female gender 3. Race: * Black * Asian * Hispanic * Other 4. Substance use: * Alcohol use * Use of drugs * Tobacco use 5. Co-morbidity: * Coronary vascular dis. * Cancer * Congestive heart failure * Ischemic heart disease * COPD * Cardiac arrest * Hypertension * Diabetes (insulin) 6. Inability to ambulate
1. 0.78 [0.62, 0.98] 2. 0.70 [0.53, 0.91]	1. 1.04 [1.01, 1.06] 2. 1.15 [1.07, 1.23]	1. * 0.85 [0.75, 0.97] * 0.87 [0.82, 0.93] * 0.89 [0.82, 0.97] 2. 0.78 [0.74, 0.81] 3. * 0.75 [0.72, 0.78] * 0.82 [0.74, 0.90] * 0.68 [0.65, 0.71] * 0.85 [0.73, 0.98] 4. * 0.56 [0.47, 0.67] * 0.73 [0.60, 0.89] * 0.85 [0.79, 0.93] 5. * 0.70 [0.62, 0.79] * 0.73 [0.65, 0.81] * 0.80 [0.76, 0.85] * 0.92 [0.85, 0.99] * 0.86 [0.75, 0.98] * 0.55 [0.39, 0.76] * 1.06 [1.00, 1.11] * 0.94 [0.89, 1.00] 6. 0.45 [0.35, 0.58]
Postal questionnaire	Questionnaire	b) United States Renal Data System (USRDS)

Discussion

The aim of this systematic review was to retrieve disease-generic factors associated with WR or RTW of workers with a chronic disease. We identified several factors associated with WR or RTW across all ICF dimensions. Of these results, factors reported in multiple studies were age and gender. The patient's own prediction of RTW was found to have a large effect on RTW in one study.

Both older age and female gender, relating to the personal dimension of the ICF, were reported to be negatively associated with work participation, which is consistent with the findings of other systematic reviews [14,15], focusing on specific diseases. The systematic review of Detaille et al. [18], focusing on prognostic factors of work disability common in the five most prevalent chronic diseases (rheumatoid arthritis, asthma, chronic obstructive pulmonary disease, diabetes mellitus and ischemic heart disease), found a negative association of both older age and female gender with work disability. Since our results are in line with these previous studies, despite the different outcome parameters and study populations, this would indicate that the associations of older age and female gender with work participation are independent of diagnosis. This supports our hypothesis that factors other than disease-related factors play a significant role in WR or RTW of the chronically ill.

Age was reported by several studies in this review [26,28,29] with the most consistent finding of older age being negatively associated with work participation. Fraser et al. [30] reported that older workers can experience age discrimination and consider this a barrier for work participation. The negative association of female gender with work participation [28,29] was explained by Côté and Coutu [31] by how men and women perceive themselves in relation to their social environment, i.e., social identity. Work-associated self-identity may foster social stereotyping of gender roles especially that of the man as breadwinner [32], which may influence the higher chance of RTW for men. Given the aging working population, the increasing work participation by women and the trend that people will have to work longer before their retirement in Western countries [33], a substantial part of the workers will be at risk for reduced work participation. As these personal factors, age and gender, are not modifiable, more intensive guidance at an early stage targeted at these higher-risk groups could be implemented to enhance future

work participation.

With regard to the association of one's own prediction of RTW and work participation, Heijbel et al. [26] reported that the predictive value of a person's own negative prediction regarding RTW was 96%. This means that only four out of 100 people with a negative prediction does in fact RTW after sickness absence. This result is in line with previous research, indicating that the prediction of RTW is an important indicator of RTW [34]. In addition, the study of Wind et al. [35] showed that patients are capable of predicting their own RTW in the context of disability claims. Dunstan et al. [36], which operationalized the prediction of RTW by the term "Behavioural Intention" (BI), states that BI can be influenced by a change in how one thinks about work, how the social environment thinks about RTW and how one perceives the behaviour, RTW, to be under his or her control. With regard to the social environment, Dunstan et al. [36] reported that the doctor's opinion carried the greatest weight and therefore influences the patient's expectation of RTW, meaning that health professionals should bear in mind that their opinion influences the RTW of their patients. In addition, expectation of RTW is subject to change by altering the patient's attitude about work and the perception of feeling in control of their own behaviour of RTW [36], these being the two other components of BI. By identifying workers with a negative prediction of their RTW at an early stage, and aiming specific interventions at these groups, work participation could be enhanced.

This systematic review revealed that studies including study populations with various diagnoses are limited. Therefore, in addition to the low overall quality of the retrieved studies, evidence of the factors associated with work participation is restricted. The factors retrieved in this review, i.e., age, gender and prediction of RTW, are among the most commonly reported factors associated with work participation. This review shows that these factors are applicable to populations with various diagnoses. These disease-generic factors provide insight for health professionals who are at risk for reduced work participation. One should keep in mind that participation in work could also be affected by factors dependent on the type of diagnosis. For example, treatment-related factors, such as the adverse effects of intensive chemotherapy [37], can influence work participation in workers with cancer. Both disease-generic and disease-specific factors can be targeted to optimize work participation efforts.

Further research should aim to increase the evidence regarding disease-generic factors associated with work participation in chronically ill workers, additional to those identified in our review. These factors could help professionals involved in work participation programmes to identify workers who are at high risk of not participating in work and to target interventions early in the process in order to enhance work participation.

Conclusion

The objective of this review was to search systematically for disease-generic factors associated with either WR or RTW in people of working age with a chronic disease. Various disease-generic factors are associated with work participation, of which most of the reported factors are independent of diagnosis. Evidence for the retrieved factors is restricted, due to the limited availability of studies focusing on disease-generic factors and the overall low quality of the studies.

Acknowledgments

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Conflict of interest

The authors declare that they have no conflict of interests.

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Appendix 1

Search strategy

PubMed, Date of search 27 February 2014:
("chronic disease"[Mesh] OR chronic disease*[tw] OR chronic disorder*[tw] OR chronic health[tw] OR chronic condition*[tw]) AND ("return to work"[Mesh] OR (return to[tw] AND work[tw]) OR back to work[tw] OR unemployment[Mesh] OR unemployment[tw] OR "Employment"[Mesh:NoExp] OR employment[tw] OR employability[tw] OR work resumption[tw] OR working age[tw] OR "job satisfaction"[Mesh] OR "sick leave"[Mesh] OR absenteeism[Mesh] OR sick leave[tw] OR absenteeism[tw] OR work retention[tw] OR job retention[tw] OR job status[tw] OR work status[tw] OR employment status[tw] OR paid work[tw] OR vocational status[tw] OR occupational status[tw] OR work functioning[tw] OR job functioning[tw] OR work capacity[tw] OR employment capacity[tw] OR work participation[tw] OR employment participation[tw] OR stay at work[tw] OR presenteeism[tw] OR work outcomes[tw] OR work ability[tw])
Note: no additional limits have been applied

Embase Classic + Embase 1947 – Present (OvidSP), Date of search 4 March 2014:
1. chronic disease/
2. (chronic illness or chronic disease* or chronic disorder* or chronic condition or chronic health).ab,kw,ti.
3. return to work/
4. (return to work or (return to adj3 work) or back to work).ab,kw,ti.
5. unemployment/
6. unemployment.ab,kw,ti.
7. employment/
8. (employment or employability).ab,kw,ti.
9. employment status/
10. (employment status or job status or work status or vocational status or occupational status or paid work).ab,kw,ti.
11. work resumption/
12. (work resumption or working age or work retention or job retention or work functioning or job functioning or work participation or employment participation or stay at work or presenteeism or work outcomes).ab,kw,ti.
13. work capacity/
14. (work capacity or employment capacity or work ability).ab,kw,ti.
15. job satisfaction/
16. job satisfaction.ab,kw,ti.
17. absenteeism/
18. (absenteeism or sick leave).ab,kw,ti.
19. or/3-18 [RTW or job retention]
20. 1 or 2 [chronic diseases]
21. 19 and 20
Note: no additional limits have been applied

PsychINFO 1806 to Present (OvidSP), Date of search 5 March 2014:
1. "chronicity (Disorders)"/ or "chronic illness"/
2. (chronic disease or chronic disorder? or chronic health or chronic condition or chronic illness).ab,id,ti.
3. reemployment/
4. (return to work or (return to adj3 work) or back to work).ab,id,ti.
5. unemployment/
6. unemployment.ab,id,ti.

7. employment status/
8. (employment status or employment or work resumption or working age or paid work or work functioning or job functioning).ab,id,ti.
9. occupational status/
10. (occupational status or job status or work status or vocational status or work participation or employment participation or stay at work or presenteeism or work outcomes or work ability).ab,id,ti.
11. employability/
12. (employability or work capacity or employment capacity).ab,id,ti.
13. job satisfaction/
14. (job satisfaction or work retention or job retention).ab,id,ti.
15. employee absenteeism/
16. (employee absenteeism or sick leave or absenteeism).ab,id,ti.
17. 1 or 2 [chronic disorders]
18. or/3-16 [RTW or job retention]
19. 17 and 18
Note: no additional limits have been applied

CINAHL Plus with Full Text (EBSCOhost), Date of search 6 March 2014:
(MH "Chronic Disease")
SU chronic disease OR chronic disorder
(MH "Job Re-Entry")
SU job re-entry
(MH "Unemployment")
SU unemployment
(MH "Employment+")
SU employment OR employment status OR working age
(MH "Job Satisfaction+")
SU job satisfaction
(MH "Sick Leave")
SU sick leave
(MH "Absenteeism")
SU absenteeism
(S1 OR S2)
(S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14)
S15 AND S16
Notes: no additional limits have been applied

Appendix 2

Data extraction

First author (year), country of origin	Study design	Participants: a) Sample size b) Gender (F%) c) Range of age (mean, SD) d) Chronic disease e) Employment at baseline (employed %).	Outcome: a) Definition b) Type of measurement
Heijbel (2006), Sweden	PC	a) 508 b) 90.9 c) 24-64 (50*, NR) d) Musculoskeletal pain (33.7%**), mental distress (15.6%**), respiratory disorders (1.9%**), cardiovascular disorders (1.5%**), other (i.e. neurological disorders, factures, diabetes, 12.0%**), combination of disorders (35.2%**). e) 100	a) Return to work, defined as work status on the 18th month after baseline. Persons who were returned (part-time) and were working for <15 days during the 18th month were counted as returners. b) Human resource departments in 5 municipalities and 4 county councils.
Baanders (2002), the Netherlands	CS	a) 1266 b) 56.5 c) 15-64 (NR, NR) d) Cardiovascular disease (7.7%), chronic nonspecific lung diseases (18.6%), locomotor disease (15.0%), cancer (5.1%), diabetes mellitus (10.4%), neurological disease (9.1%), digestive disorder (3.5%), other (30.6%). e) 45.1	a) Work retention, defined as labour market participation is defined as having a paid job for at least twelve hours per week. b) Postal questionnaire.

Factor: a) Definition b) Type of measurement	Effect (HR/OR/RR/ correlation)	Quality assessment
a) Univariate logistic regression analyses: 1. Sex, male (r: female) 2. Age ≤44y (r: 55-65y). 3. Age 45-54y (r: 55-65y). 4. Own prediction of RTW, yes (r: no). 5. Complaints from >1 group of symptoms, no (r: yes). 6. Duration of the complaints ≤5y (r: >5y). 7. Duration of sick leave <1y (r: ≥1y). 8. Pain, 1st quartile (r: 4th quartile), measured by von Korff's questionnaire. 9. Pain, 2st quartile (r: 4th quartile). 10. Pain, 3rd quartile (r: 4th quartile). 11. Function, 1st quartile (r: 4th quartile), measured by von Korff's questionnaire. 12. Function, 2st quartile (r: 4th quartile). 13. Function, 3rd quartile (r: 4th quartile). 14. Physically strenuous work, no (r: yes). 15. Contact with the workplace/workmates, yes (r: no). 16. Perception of being welcome back to work, yes (r: no or do not know). 17. Contact with the Occupational Health Service, yes (r: no). 18. Contact with the Regional Social Insurance officer, yes (r: no). 19. Contact with the Trade Union, yes (r: no). 20. Rehabilitation programme, yes (r: no). b) Postal questionnaire (n=520), telephone interview (n=5).	OR [95% CI]: 1. 1.23 [0.64, 2.39] **2. 2.48 [1.43, 4.31]** **3. 2.18 [1.30, 3.67]** **4. 15.99 [6.86, 37.25]** **5. 2.01 [1.29, 3.13]** **6. 1.75 [1.12, 2.72]** **7. 2.67 [1.76, 4.05]** **8. 3.73 [1.84, 7.55]** **9. 5.51 [2.74, 11.07]** **10. 2.23 [1.06, 4.70]** **11. 2.70 [1.41, 5.16]** **12. 2.05 [1.06, 3.97]** 13. 1.61 [0.82, 3.16] 14. 1.54 [1.00, 2.38] 15. 1.97 [0.94, 4.14] **16. 1.92 [1.23, 2.99]** 17. 1.35 [0.90, 2.02] 18. 0.84 [0.54, 1.31] 19. 1.08 [0.73, 1.61] 20. 1.12 [0.72, 1.75]	Sufficient
a) Not-employed versus employed: 1. Gender, female (r: male). 2. Age, 25-44y (r: 15-24y). 3. Age, 45-64y (r: 15-24y). 4. Education level, primary (r: university). 5. Educational level, lower secondary + vocational (r: university). 6. Educational level, intermediate secondary + vocational (r: university). 7. Educational level, higher vocational (r: university). 8. Experiencing motor control problems, yes (r: no) b) Postal questionnaire.	B-coefficient***: **1. p < 0.01, neg.** **2. p < 0.01, pos.** 3. Non-significant. **4. p < 0.01, neg.** **5. p < 0.01, neg.** 6. Non-significant. 7. Non-significant. **8. P < 0.01, neg.**	Insufficient

First author (year), country of origin	Study design	Participants: a) Sample size b) Gender (F%) c) Range of age (mean, SD) d) Chronic disease e) Employment at baseline (employed %).	Outcome: a) Definition b) Type of measurement
Botticello, (2012), USA	CS	a) 1013 b) 19.1 c) 17-64 (41.2, NR) d) Spinal cord injury; paraplegia (53.2%), tetraplegia (46.8%). e) 63.4	a) Work retention, defined as employment status, assessed at least one follow-up using the categories: working, homemaker, job-training program, sheltered workshop, student, retired, unemployed, or other (which includes volunteer work, disability, or medical leave). The variable was dichotomized as 'paid employment' 'yes' (category: 'working') and 'no' (remaining categories). b) Telephone interview.
Calsbeek (2005), The Netherlands	CS	a) 246 b) 58.2** c) 15-24 (20.1**, NR) d) Inflammatory bowel disease (49.2%), chronic liver diseases (11.7%), congenital digestive disorder (17.6%), food allergy (9.4%), celiac disease (12.1%). e) NR	a) Work retention, defined as labour participation, assessed by the number of hours employed per week which were dichotomized in 'having a paid job' (<12 h/w) vs. 'not having a paid job). b) Postal questionnaire.
Messmer Uccelli (2009), 18 European countries.	CS	a) 1141 b) 67 c) 21-67 (41.8, 9.2) d) Multiple sclerosis e) 61	a) Work retention, defined as employment status; differentiating between employed or not employed. b) Questionnaire.

Factor: a) Definition b) Type of measurement	Effect (HR/OR/RR/ correlation)	Quality assessment
a) 1. > SES index (r: < SES index) defined as area-level socioeconomic index, combination of (1) employment rate, (2) percent of population residing within an urban area, (3) measures of household income, housing values, education and portion of residents employed in high status occupations. 2. Rural (r: suburban), defined as <60% of residents lived in an urban area (>50.000 residents). 3. Urban (r: suburban), defined as >90% of residents lived in an urban area. b) National Historical Geographical Information System, 2000 US Census Summary File.		Sufficient
a) Bivariate logistic regression analyses: 1. Physical complaints, yes (r: no). 2. Anxiety, yes (r: no). 3. Depression, yes (r: no). 4. Disability in endurance, yes (r: no). 5. Hospitalization, yes (r: no). 6. Use of medication, yes (r: no). 7. Need to diet adherence, yes (r: no). 8. Nocturnal toilet use, yes (r: no). b) Postal questionnaire.		Insufficient
a) Category variables: 1. MS-related symptoms (more difficult, n=20). 2. MS-related symptoms (easier, n=7). 3. Workplace environment (more difficult, n=13). 4. Workplace environment (easier, n=19). 5. Your attitude towards work (more difficult, n=6). 6. Your attitude towards work (easier, n=4). 7. Attitudes of others in the workplace (more difficult, n=6). 8. Attitudes of others in the workplace (easier, n=4). 9. Financial considerations (more difficult, n=5). 10. Financial considerations (easier, n=4). 11. Personal considerations (more difficult, n=9). 12. Personal considerations (easier, n=9). Measured by the employed group, reference group is the unemployed group. b) Questionnaire. Participants were asked to indicate to what extent each item made job maintenance easier or more difficult, from one of three options (1) not at all, (2) somewhat, (3) very much.		Insufficient

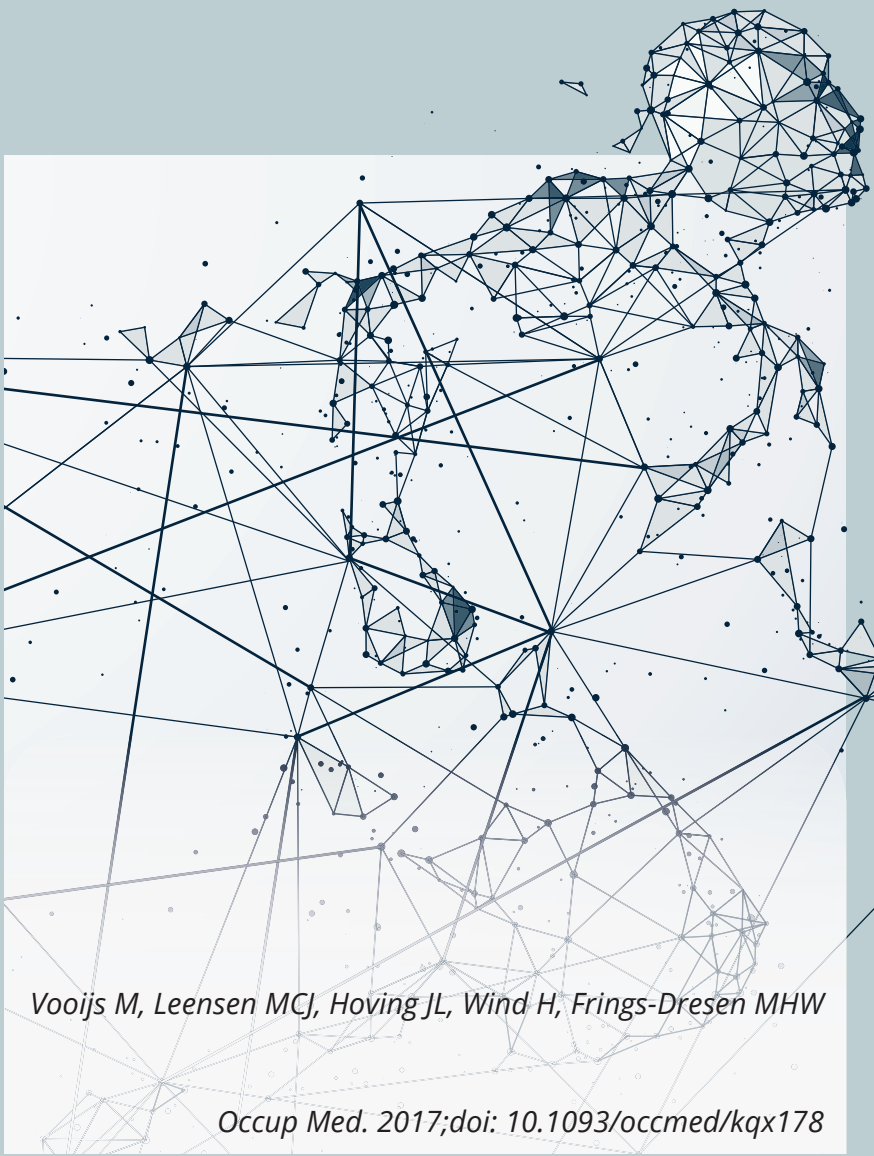
First author (year), country of origin	Study design	Participants: a) Sample size b) Gender (F%) c) Range of age (mean, SD) d) Chronic disease e) Employment at baseline (employed %).	Outcome: a) Definition b) Type of measurement
Muehrer (2011), USA	RC	a) 102104 b) NR c) 15-64 (NR, NR) d) Chronic kidney disease, end-stage renal disease (ESRD). e) NR	a) Work retention, defined as maintaining employment. Person's inability to maintain employed was identified when, at initiation of treatment, persons changed employment from full- to part-time or to any other status (retired, student, homemaker, etc.). b) United States Renal Data System (USRDS).

CS = cross-sectional study

Factor: a) Definition b) Type of measurement	Effect (HR/OR/RR/ correlation)	Quality assessment
a) Univariate logistic regression analyses (model 1999 through 2003): 1. Age, 15-19 y (r: 50-54y). 2. Age, 20-24y (r: 50-54y). 3. Age, 25-29y (r: 50-54y). 4. Age, 30-34y (r: 50-54y). 5. Age, 35-39 (r: 50-54y). 6. Age, 40-44y (r: 50-54y). 7. Age, 45-49y (r: 50-54y). 8. Age, 55-59 (r: 50-54y). 9. Age, 60-64 (r: 50-54y). 10. Gender, women (r: men). 11. Race, black (r: white). 12. Race, Asian (r: white). 13. Race, Native American (r: white). 14. Race, other (r: white). 15 Race, Hispanic (r: white). 16. ESDR cause, hypertension (r: diabetes). 17. ESRD cause, glomerulonephritis (r: diabetes). 18. ESRD cause, other (r: diabetes). 19. ESRD cause, cystic kidney (r: diabetes). 20. ESRD cause, other urologic (r: diabetes). 21. Inability to transfer, yes (r: no). 22. Alcohol use, yes (r: no). 23 Coronary vascular disease, yes (r: no). 24. Use of drugs, yes (r: no). 25. Cancer, yes (r: no). 26. Congestive heart failure, yes (r: no). 27. Tobacco use, yes (r: no). 28. Pericarditis, yes (r: no). 29. Arrhythmia, yes (r: no). 30. Inability to ambulate, yes (r: no). 31. Ischemic heart disease, yes (r: no). 32. COPD, yes (r: no). 33. Cardiac arrest, yes (r: no). 34. Diabetes (no insulin), yes (r: no). 35. Peripheral vascular disease, yes (r: no). 36. Anemia, yes (r: no). 37. Hypertension, yes (r: no). 38. Diabetes (insulin), yes (r: no). 39. Myocardial infarction, yes (r: no). 40. Predialysis erythropoietin use, yes (r: no). 41. Dialysis setting, home (r: dialysis facility). 42. Dialysis setting, hospital inpatient (r: dialysis facility). 43. Primary type of dialysis, continuous ambulatory peritoneal dialysis (r: hemodialysis). 44. Primary type of dialysis, continuous cycling peritoneal dialysis (r: hemodialysis). 45. Primary type of dialysis, intermittent peritoneal dialysis (r: hemodialysis). 46. Primary type of dialysis, other (r: hemodialysis). 47. Medicaid, yes (r: no). 48. Department of Veterans Affairs, yes (r: no). 49. Medicare, yes (r: no). 50. Insurance by employer, yes (r: no). 51. Other, yes (r: no). 52. No insurance (r: having an insurance). b) United States Renal Data System (USRDS).		Insufficient

CHAPTER 3

Value of work for employees with a chronic disease



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Abstract

Background: Most people with a chronic disease value participation in work. Knowledge is limited, however, as to what extent employees with a chronic disease value participating in work, and for which main reasons. Also limited research is available on which specific aspects contribute to the perceived value of work.

Aims: To evaluate for which main reasons, and the extent that employees with a chronic disease value participation in work, and which aspects motivate or demotivate employees in work.

Methods: A survey of members of three large patient federations was performed. Respondents had a chronic disease and were of working age. The extent and reasons for valuing work were analysed using descriptive statistics, (de)motivating aspects were qualitatively analysed using MAXQDA.

Results: The 1683 respondents valued work on average at an 8 on a scale from 1 to 10 (1: 'work is not at all important to me' and 10: 'work is extremely important to me'). Most frequent reported reasons for valuing work were the provision of income, social contact, and the ability to contribute to society. Motivational aspects in work were being financially independent, having positive social contact with colleagues or clients, and having the ability to contribute to society. In contrast, negative social contact, performing useless work, and having little autonomy demotivated people.

Conclusion: Employed people with a chronic disease generally value work, mainly because it makes them financially independent, provides social contact and enables them to contribute to society.

Introduction

On average, 28% of people of working age have been diagnosed with a chronic disease [1] that negatively affects their ability to participate in work [2,3] through impaired functioning [4,5]. Those with a chronic disease are more frequently unemployed and work fewer hours than the general population [2,3]. Nevertheless, previous research indicates that people with a chronic disease see participation in work as an important rehabilitation goal [4,6]. In addition, work has been shown to benefit health [7], which underlines the need for people with a chronic disease to participate in work.

Previous research has reported various reasons for valuing work; work is not only seen as a source of income, but can also provide social contacts [8] and a sense of belonging and self-worth to an individual [9]. People with a chronic disease also describe work as indicative of 'returning to normality' [6,10,11], a signal that one is getting better [10] or that everyday life has been restored [12]. Despite this research, the extent to which workers with a chronic disease value their work, and the main reasons they do so, is unclear.

In addition, participation of people with a chronic disease in work is influenced by numerous factors, such as motivation, job satisfaction, feelings about ones current work [13] and the fit of the job to the individual [14]. In order to provide further insight into specific factors that contribute to a perceived value to work, this study explored factors that are motivational for workers in their work or vice versa.

The concept of a perceived value of work has also gained recent attention [15], with authors arguing that when the needs of employees are met in the workplace, people are more likely to be capable of and willing to continue participating in work. These needs could be fulfilled by having reasons to value work and experiencing motivational aspects in work. Insight into the reasons for valuing work and motivational aspects could support organisations and occupational health professionals (OHPs) to stimulate those aspects that motivate and enable people in work, and counteract those factors that demotivate and therefore hinder people in work.

This study therefore explores the value of work, and in particular:

1. To what extent do employees with a chronic disease value their work?
2. For which main reasons do employees with a chronic disease value their work?
3. Which aspects in work motivate or demotivate employees with a chronic disease?

Methods

This cross-sectional study consists of an analysis performed on data derived from a questionnaire, which was distributed among members of three large patients federations (Ieder(In), the 'Patiëntenfederatie Nederland' and the LPGGZ) in the Netherlands. These patient federations are coordinating organisations, in which a number of smaller associations are affiliated, each focusing on a chronic disease, such as heart disease, rheumatoid arthritis, cancer, lung disease, diabetes, chronic obstructive pulmonary disease (COPD), etc. The members of these organisations are people who have been diagnosed with a chronic disease or multiple chronic diseases for a significant period of time. Members were invited to complete an online questionnaire by email. In addition, social media was used to recruit participants. Respondents were included in the analysis when they were employed and had a self-reported chronic disease. Only those respondents who answered all the questions related to our research were included in the study.

Demographic data were collected on gender, age, education level, and type of employment contract. With regard to value of work, respondents were asked to indicate how important work was for them and were asked about the reasons they valued work (see Table 1). These categories were based on earlier research on why work participation is important, focusing on people with specific chronic diseases [10,15,16]. With regard to aspects in work motivating or demotivating people, the question 'which aspects of your work motivate or demotivate you?' was used (see Table 1). Respondents could indicate three aspects that motivated or demotivated them in work.

Table 1. Questions to research value of work

Question	Answer category
How important is participating in work for you?	Visual Analogue Scale (VAS) ranging from 1 to 10, in which 1 was indicated as 'work is not at all important to me' and 10 as 'work is extremely important to me'.
For which reasons do you value participation in work?	Multiple choices in which respondents could indicate one or multiple answers. o Because I can make myself useful o Because it is a source of income o Because it gives my life meaning o Because it provides social contact o Because it enables me to apply and develop my talents o Because it improves my physical health o Because it improves my mental health o Because it gives me respect from others o Because it gives my day structure o Because it prevents boredom o Other, namely …. o I do not know o Work is not important to me
Which aspects of your work motivate or demotivate you?	Open-ended question. Instruction for respondents: Regarding (de)motivational aspects, you can consider aspects related to: collaboration with colleagues and managers, communication, work environment, work content, working hours, working conditions, appreciation of the work and the organisation in which you work.

For data analysis, 'education' was recoded as 'education category', in which people with no education or people who had finished special education or specific vocational training were categorised as 'low education'. People who had finished high school or followed intermediate vocational education were categorised as 'medium education'. People who had completed their education at a university of professional education or university or had finished postgraduate education were categorised as 'high education'. The reasons why people valued work were converted into 13 dichotomous variables containing the options 'yes' or 'no', indicating that respondents considered the reason for participating in work to be important ('yes') or not ('no'). The demographic data, the extent to which people value work and the reasons why people valued work, were analysed using descriptive statistics (SPSS Statistics 23.0). Aspects that motivated or demotivated people in work were analysed using the MAXQDA software package (Verbi GmbH, Marburg, Germany). The answers were coded and categorized by the first researcher (MV), after which the codes were checked by the other researchers (ML, JH, HW, MF).

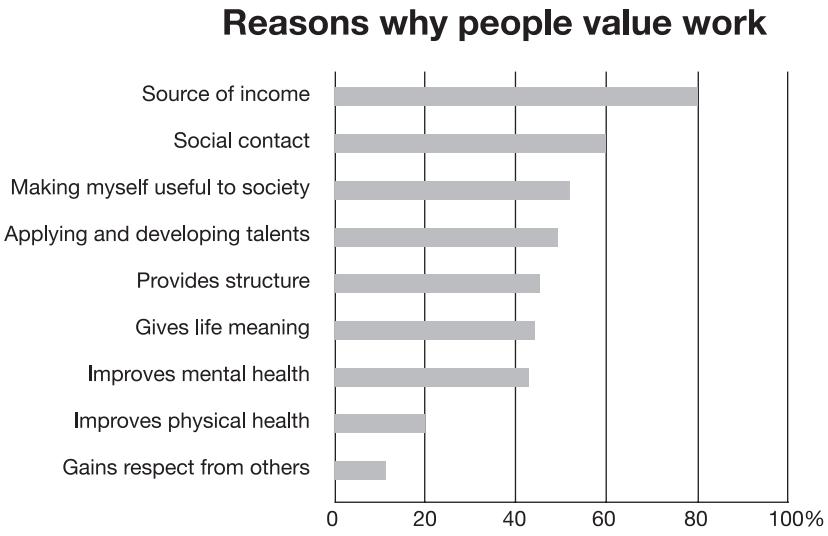
The study was conducted in accordance with the declaration of Helsinki. Since this study does not entail medical research and participants were not exposed to acts or rules of conduct, the research team decided that the research was not subject to the Medical Research Involving Human Subjects Act.

Results

Of the 4964 people who filled in the questionnaire, a total of 1683 respondents fulfilled the inclusion criteria. Of these latter respondents, 1,069 (64%) were female. The average age of respondents was 51 (SD: 10) years old. A total of 132 (8%) respondents had finished lower education, 753 (45%) respondents had finished middle education and 762 (45%) had finished higher education. 36 (2%) respondents did not answer the question regarding education. 1246 (74%) respondents had permanent employment, 139 (8%) had a temporary contract, 31 (2%) worked via an employment agency and 148 (9%) were self-employed. The remaining 116 (7%) employed people indicated 'other' concerning their employment status.

On a scale of 1 to 10, respondents gave work an average value of 8 (SD: 2). The reasons why people value work are presented in Figure 1. The three most frequently given reasons for valuing work are that work is a source of income (80%), work provides social contact (60%) and work makes respondents feel useful to society (52%).

Figure 1. Reasons why people value work; respondents could indicate multiple reasons (n=1683)



Aspects that motivate and demotivate people in work are described in work-related categories, including: work content, work conditions, work relations and work environment or aspects related to personal factors or values.

With regard to work content, respondents mentioned that they enjoyed their job which motivated them. Having job-related contact with others also motivated respondents, such as having positive contact with clients or being able to help clients. Performing mentally challenging work in which the respondents were able to use or develop their talents, or performing varied and meaningful work, were reported to be motivational aspects. Doing new projects, optimizing projects, achieving goals or being successful were also mentioned as aspects motivating respondents. Some respondents reported that physical activity and moving during the day also motivated them. Finally, having autonomy over how one performs work tasks was frequently mentioned as motivational aspect. By contrast, not liking one's job, having difficult interaction with clients or other companies, doing high mentally demanding work, performing useless and mentally undemanding work, not achieving one's goals, and having little or no autonomy were mentioned as demotivating aspects. In addition, doing sedentary work or work that was physically demanding or repetitive were aspects demotivating respondents. Finally, bureaucracy and having to attend

many meetings were identified as demotivating.

With regard to work conditions, having an income and being financially independent were mentioned as motivational aspects, as were having flexible hours or regular working hours. The respondents also gained motivation from having a short commute to work or commuting to work by bike through nice surroundings. Aspects that demotivated respondents were dissatisfaction with one's level of income and having fixed, long, early or irregular working hours. Having a long commute was also mentioned as a demotivating aspect.

With regard to work relations, respondents mentioned that they gained motivation from having contact with, collaborating with or receiving empathy from their colleagues or employers. They also gained motivation from being appreciated by people in their work environment. Aspects that demotivated respondents were having negative contact or experiencing negative collaboration with people in their work environment. Not receiving empathy from or not being appreciated by one's work environment was also indicated as a demotivating aspect. In addition, receiving insufficient support or empathy from the organisation's occupational health service demotivated respondents.

With regard to work environment, respondents stated that being satisfied with their organisation, having clear communication within the organisation, and working in a stable organisation motivated them. Having a work environment with comfortable noise and temperature levels was motivational. In addition, having adequate technical equipment to perform their work was indicated to motivate respondents, as was having a low or adequate workload in combination with sufficient rest. By contrast, being dissatisfied with their organisation, experiencing inadequate communication, and working in an unstable organisation demotivated respondents. Working in an environment with uncomfortable noise or temperature levels, or with a lack of adequate equipment, demotivated respondents. The respondents indicated that having a too heavy workload demotivated them. Finally, working alone was indicated as an aspect that could either motivate or demotivate respondents, depending on the respondent's preferences.

Finally, with regard to personal values, respondents' indicated that work motivated them by providing them with a structure and a goal in their lives. Being busy and having work as a distraction from their disease were

also mentioned as motivating aspects. Some respondents indicated that they viewed work as a sign of physical health, which motivated them. Various respondents indicated that they gained motivation from being able to work and therefore contribute to society. Some respondents also mentioned that work gave them a sense of self-worth and self-esteem, which motivated them. One demotivating aspect, according to various respondents, was the need to prove that one is able to perform at the same level as a healthy person. Some respondents also mentioned that limitations on their ability to work, due to the chronic disease, demotivated them in work.

Discussion

The purpose of this study was to evaluate the extent to which, and the reasons why, employees with a chronic disease value participation in work. Based on the results of this study, most respondents value participation in work. The reasons most frequently given for this were the provision of income, social contact and the ability to contribute to society. In our additional focus on how work aspects affect respondents' perception on value of work, we found that there are several aspects that motivate or demotivate respondents in work, related either to work or to the person him- or herself.

A strength of this study is that it included a large sample of people with various chronic diseases. This means that perspectives where gathered of a large number of people irrespective of specific diagnosis. This generated new information in relation to previously performed research focusing on specific diagnosis. In addition, this study provides insight on which specific aspects motivate or demotivate people to participate in work, providing insight in which specific aspects contribute to value of participation in work. A limitation of this study is that the questions were part of a larger questionnaire distributed by patient federations. As they recruited people amongst others via social media, we have no specific insight in who they approached. Therefore, we are not aware of the response rate and are not able to tell if our sample differs from the people who did not respond.

The finding that most respondents value participation in work is supported by previous research, which concludes that people with a chronic disease perceive work as a significant part of everyday life [17,18]. With regard to the reasons why employed people value work and which aspects motivate

or demotivate them in work, many of the results reported in this study are in line with previous research focusing on facilitators for participation in work, or on the quality of work [5,10,13,14,19,20].

'Social contact' is one of the reasons most frequently reported by employed people with a chronic disease for why they value work. This is in line with previous research, which indicates that social contact is an important aspect of the perceived quality of work [14]. In addition, social contact, along with other themes identified in this study, such as levels of appreciation and work pressure, corresponds with important components of the well-known Effort-Reward Imbalance model [21] and the Job-Demand-Control-Support model [22]. These models explain the balance between work tasks and the available resources in order to maintain work. The correspondence between the themes identified in this study and the components of these models in which balance is key, may imply that there is also a need for balance between the aspects motivating or demotivating respondents, in order to achieve healthy participation in work.

Both the models [21,22] apply to people with or without a chronic disease. Moreover, the values reported by respondents with a chronic disease, in addition to motivating or demotivating aspects, correspond to a large extent with the values and motivating or demotivating aspects of people without a chronic disease [23]. This implies that many aspects influence work and work participation other than the chronic disease itself. This corresponds with the results of previous research [24,25,26], which shows that work participation in the chronic phase of a disease is influenced by physical, psychological, social, administrative and cultural aspects [27].

Besides the most frequently given reasons for valuing work, the respondents also reported that they valued work because it had a positive impact on their physical and mental health. In line with this, Waddell et al. [7] reported that retaining at or returning to work is associated with improved general and mental health. The effect of work on respondents' health may be explained by some underlying motivational aspects of work, such as having a structure to one's day, having a distraction, or being able to develop skills or abilities to work that may directly or indirectly influence one's perception of one's health or health behaviour. The finding that respondents consider work to have a positive impact on their health, reinforces current social attitudes regarding the ability of people with a chronic disease and guidance towards

participation in work [28].

Based on this study's finding that most people value work, OHPs should continue to encourage and support people with a chronic disease to participate in work to their abilties. Although many of the aspects that demotivated people, such as having little autonomy, experiencing a negative work environment, and working in an uncomfortable environment, were found in earlier research to influence work participation [5,10,13,14,19,20], this study shows that these aspects can still negatively affect respondents' experiences of work. This indicates that the knowledge gained from previous studies is not being fully utilized or implemented in society. OHPs may therefore support work participation, by discussing motivating and demotivating aspects with their clients. Results of this study can facilitate OHPs in the exploration of these aspects influencing individuals' value of work, as preferences and (work) situation can differ per individual. Balance between these aspects can be strived to be restored through the use of interventions. In addition, OHPs could advise employers to actively support work participation of people with a chronic disease, as work environment can facilitate work adaptations which can reduce the influence of aspects depriving energy.

In conclusion, this study shows that work is generally valued by working people with a chronic disease, mainly due to the provision of income, the provision of social contact and the ability to contribute to society. Various aspects of work, related to work tasks, work relations, work environment and work conditions, were also found to motivate or demotivate respondents in work. The respondents also reported personal values as motivating or demotivating aspects.

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Declaration of interest

Author M. Vooijs, author M.C.J. Leensen, author J.L. Hoving, author H. Wind and author M.H.W. Frings-Dresen declare that they have no conflict of interest in relation to this study.

Ethical Approval

All procedures followed were in accordance with the Helsinki Declaration of 1975, revised in 2013.

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CHAPTER 4

Interventions to enhance work participation of workers with a chronic disease: A systematic review of reviews

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Abstract

The aim of this systematic review was to provide an overview of the available effective interventions that enhance work participation of people with a chronic disease, irrespective of their diagnosis. A search was conducted in PubMed, EMBASE, PsycINFO, CINAHL and the Cochrane Library, searching for systematic reviews published between 2004 and February 2015. Systematic reviews were eligible for inclusion if they described an intervention aimed at enhancing work participation and included participants of working age (18-65 years) with a chronic disease. Reviews had to include populations having different chronic diseases. The quality of the included reviews was evaluated using the quality instrument AMSTAR. Results of reviews of medium and high quality were described in this review. The search resulted in nine reviews, five of which were of medium quality. No high quality reviews were retrieved. One review reported inconclusive evidence for policy-based RTW initiatives. The four other reviews described interventions focused on changes at work, such as changes in work organisation, working conditions and work environment. Of these four reviews, three reported beneficial effects of the intervention on work participation. Interventions examined in populations having different chronic diseases were mainly focused on changes at work. The majority of the included interventions were reported to be effective in enhancing work participation of people with a chronic disease, indicating that interventions directed at work could be considered for a generic approach in order to enhance work participation in various chronic diseases.

Introduction

The number of people with a chronic disease is rising [1]. Unhealthy lifestyles, which are a prominent risk factor of developing various chronic diseases [1], and enhanced treatment, which improves survival rates of patients with various diagnoses [2], both contribute to this increasing number of people with chronic diseases. At the same time, the age of the workforce rises due to the general ageing of the population and the raising of the retirement age in Western society. Since the prevalence of people with chronic diseases increases with age from 10% in early adulthood (16-24 years) to 55% before retirement (55-64 years), increasing numbers of people in the working population are affected by a chronic disease [3,4].

Previous research shows that having a chronic disease negatively affects work participation; people with a chronic disease are less often employed [4,5] and, when they are employed, experience difficulties in meeting physical or psychosocial work demands [6]. On the other hand, earlier research has shown that most people with a chronic disease want to participate in work and that work contributes to a higher quality of life [7]. With this knowledge, efforts should be directed at improving work participation of people with a chronic disease.

Research on interventions that aim to improve work participation is widely available and is frequently focused on populations with specific diagnoses, e.g., workers with low back pain [8], arthritis [9], or cancer [10]. These interventions often contain common strategies or elements, either as single interventions or as part of a programme, such as job accommodations, encouragement, education, empowerment or self-management strategies. The wide application of these common interventions in people with various chronic diseases, implies that these interventions are possibly applicable irrespective of the underlying diagnosis. However, since the interventions are studied in specific diagnoses, it is not clear if these interventions could actually be used as a generic approach.

Therefore, in this systematic review, we are interested in interventions examined in populations having different chronic diseases, in order to provide insight into which generic intervention strategies are available to improve work participation of people with a chronic disease. A generic approach enhances the insight of OHPs regarding which interventions could be applied to enhance work participation without focusing on a specific chronic disease, or which interventions could be implemented in diagnoses in which evidence of effective interventions is lacking.

Since many studies focus on interventions to enhance work participation of people with specific diseases [8-11], we included systematic reviews that gathered these specific studies in an overall review including populations with different chronic diseases. In addition, we performed a systematic review of reviews because we wanted to systematically conduct a synthesis of the highest available evidence on effective interventions in the field of occupational health. We strived to answer the following research question: Which effective generic interventions are available in enhancing work participation of people with a chronic disease?

Methods

A review protocol has been made in which the search strategy, article selection, data extraction and data synthesis were taken into account. The Preferred Reporting Items for Systematic Reviews (PRISMA statement) has been used as a formal systematic review guideline [12].

Search strategy

An extensive search was performed in PubMed (MEDLINE), EMBASE (Ovid), PsycINFO (Ovid), CINAHL (EBSCO) and the Cochrane Library, searching for records published between January 2004 and February 2015. With the help of an experienced librarian, we developed a search strategy, using published search strategies by Haafkens et al. [13] and Lee et al. [14]. Search terms included synonyms of the terms 'work retention', 'return to work' and 'employment' in combination with both synonyms of the term 'vocational rehabilitation' and synonyms of the term 'systematic review'. The strategy was formulated in PubMed (MEDLINE) and was adapted for use in the other databases. A full description of the search strategy is presented in the online supplementary material.

Selection of reviews

Abstracts of all records were retrieved and duplicates were removed. Selection of the reviews was conducted in two rounds. The first round consisted of the title and abstract screening in which the first reviewer (MV) screened all the retrieved records. Each of the four reviewers (MCJL, JLH, HW and MHWF-D) screened a quarter of the records independently. Records were screened on study design, language, outcomes and population. Systematic reviews of quantitative, qualitative or mixed-methods studies were included that were written in English, Dutch or German. The systematic review had to describe an intervention aimed at the improvement of WR or RTW of people with a chronic disease. We defined WR as preventing work loss or staying employed. RTW was defined as re-entering employment in the same job or in a different job after a period of sickness absence. When the title and abstract did not fulfil one or more selection criteria or the abstract was not available, the record was excluded. When there was not sufficient information in the title and abstract to judge eligibility, the full-text article was retrieved.

In the second round, full-text articles were retrieved and records

were selected independently by two reviewers (MV and MCJL) based on the criteria: participants were of working age (18-65 years) and had to have been diagnosed with a chronic disease for more than three months, according to the definition of chronic disease of the National Centre for Health Statistics [15]. In addition, reviews had to include populations having different chronic diseases. Records were excluded if full-text was not available or when the review did not include information on search strategy, number of included studies or details of included studies. The references of all included reviews were checked for additional relevant publications. Disagreements during the process of selection were resolved by obtaining consensus during a meeting with the other reviewers.

Quality assessment

The quality of the included reviews was independently assessed by two reviewers (MV and MCJL), using the quality instrument AMSTAR [16–17]. Criteria addressed were: (1) provision of 'a priori' design; (2) independent study selection and data extraction; (3) performance of comprehensive search; (4) inclusion of grey literature; (5) provision of a list of included and excluded studies; (6) provision of characteristics of included studies; (7) assessment of the quality of included studies; (8) appropriate use of quality in formulating conclusions; (9) use of methods to appropriately combine data; (10) assessment of publication bias; and (11) reporting of conflict of interest. The criteria could be scored as 'yes', 'no', 'can't answer' or 'not applicable'. Scores could range between 0 and 11, which were classified as follows: low-quality (score between 0 and 4) medium-quality (score between 5 and 8) and high-quality (score between 9 and 11).

Data extraction and synthesis

Data were extracted by one reviewer (MV) and checked by the other reviewers (MCJL, JLH, HW and MHWF-D). Data extracted were study characteristics (author, year, country, number and type of studies included), patient characteristics (diagnosis, number of included participants, age of participants, gender of participants and percentage of participants employed at baseline) and intervention characteristics (type of intervention, aim of intervention, content of intervention, disciplines providing the intervention, type of outcome and the results of the intervention). When the systematic

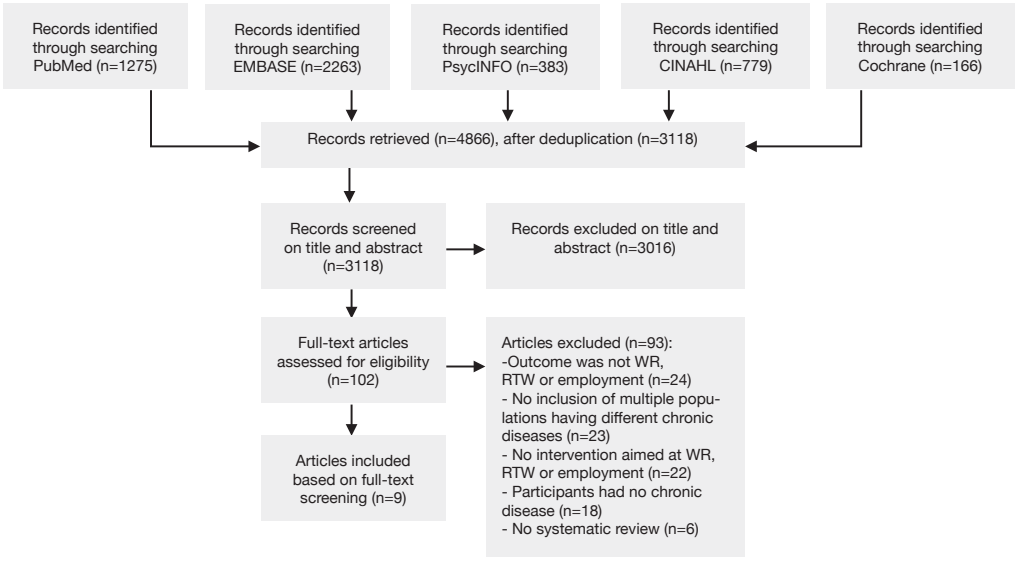
reviews included various outcomes, information related to the outcomes WR or RTW was selected. Only data related to people having a chronic disease and data regarding paid employment were extracted.

Data were synthesised by qualitatively describing the interventions and their effectiveness, performed in either a medium quality or high quality review. The intervention was classified as effective when the authors of the review reported an overall significant effect of the intervention on the work-related outcomes (WR, RTW, employment).

Results

A total of 4866 records were yielded through the search strategy: 1275 from PubMed, 2263 from EMBASE, 383 from PsycINFO, 779 from CINAHL and 166 from the Cochrane Library. After excluding double records, 3118 records remained. Performing a title and abstract screening excluded 3016 records and identified 102 records for full-text selection. On the basis of the full-text selection, nine systematic reviews met the inclusion criteria and were included in this review. Checking the references of the nine reviews yielded no additional records. The results of the literature search and study selection are presented in Figure 1. The list of excluded studies based on full-text inclusion criteria is provided in the online supplementary material.

Figure 1: Flowchart of the selection of reviews



Quality assessment

The quality of the included systematic reviews was assessed using the quality instrument AMSTAR. As can be seen from Table 1, of the nine included reviews, five were of medium quality [18-22] and four were of low quality [23-26]. No reviews of high quality were retrieved.

Table 1: Quality assessment of the included reviews

Authors	Items AMSTAR[a]											Total				Quality:
	1	2	3	4	5	6	7	8	9	10	11	Y	N	C	A	
Clayton et al. [18]	N	Y	Y	Y	N	Y	Y	N	N	N	N	5	6	0	0	Medium
Gensby et al. [19]	Y	Y	Y	Y	N	Y	Y	N	N	N	N	6	5	0	0	Medium
Van Oostrom et al. [20]	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	8	3	0	0	Medium
Franche et al. [21]	N	Y	Y	N	N	Y	Y	Y	Y	N	N	6	5	0	0	Medium
Nevala et al. [22]	N	Y	Y	N	N	Y	Y	Y	N	N	N	5	6	0	0	Medium
Bambra et al. [23]	N	N	Y	Y	N	Y	Y	N	N	N	N	4	7	0	0	Low
Désiron et al. [24]	N	N	Y	N	N	Y	Y	N	Y	N	N	4	6	1	0	Low
Varekamp et al. [25]	N	N	Y	N	N	Y	N	N	Y	N	N	3	8	0	0	Low
Clayton et al. [26]	N	N	Y	Y	N	C	C	N	N	N	N	2	7	2	0	Low

[a] Y, yes, item meets the AMSTAR criteria; N, no, item does not meet the AMSTAR criteria; C, cannot answer if the item meets the AMSTAR criteria; A, not applicable, item is not applicable to the AMSTAR criteria; studies are sorted based on AMSTAR score, ranging from high quality (top) to low quality (bottom) studies. High methodological quality: 9-11 times a score of 'yes', medium methodological quality: 5-8 times a score of 'yes', or low methodological quality: 0-4 times a score of 'yes'.

Content and effectiveness of the interventions

Detailed information on the content of the interventions is presented in Table 2. This systematic review included a total of nine reviews that examined populations having different chronic diseases. The diagnoses, interventions and results of the five included medium quality reviews are described. Of the five reviews of medium quality, one review focused on policy-based RTW initiatives [18] and four reviews focused on interventions directed at work [19-22]. Of the four reviews focusing on work-directed interventions, three reviews reported these interventions as being significantly effective in enhancing work participation [20-22].

Clayton et al. [18] focused on policy-based RTW initiatives, examined in observational and qualitative research. The review reported inconclusive evidence for the included interventions, that is, financial incentives, assistance in managing one's health condition and individual case management. However, the authors concluded that these interventions could potentially help RTW, but that financial incentives were often set too low or were too short to have an effect, and that widespread selection of more work-ready claimants led to bias in the results.

Gensby et al. [19] Van Oostrom et al. [20] Franche et al. [21] and Nevala et al. [22] focused on interventions directed at work. These reviews included a total of 25 studies, of which 21 were controlled studies. Three of these 25 studies were included in more than one review; two studies were included in the reviews of both Van Oostrom et al. [20] and Franche et al. [21] and one study was included in the reviews of both Franche et al. [21] and Gensby et al. [19].

Gensby et al., [19] who focused on workplace disability management programmes, reported that the retrieved interventions were effective in various outcomes related to work participation. However, no significant differences were reported and no judgement about effectiveness could be obtained [19]. The three other reviews all reported on interventions effective in promoting work participation. Van Oostrom et al. [20] reported on workplace interventions including changes to the workplace or equipment, changes in work design and organisation, changes in working conditions, changes in work environment, or case management with worker and employer. It was reported that moderate quality evidence supports the use of these workplace interventions for time until first RTW when compared with care as usual (HR:

1.55, 95% CI: 1.32-2.16). However, the review concluded that no convincing conclusions could be formulated from the few available studies.

Franche et al. [21] described workplace-based RTW interventions including work accommodation offer, early contact with the worker at the workplace, healthcare provider contact with the workplace, RTW coordination, worksite ergonomic visit, supernumerary replacement and assessment or treatment of a physiotherapist. Two randomised controlled trials (RCTs) reported that workplace-based RTW interventions led to a significantly higher RTW rate (OR: 2.2, 95% CI: 1.04-4.80) and faster RTW (OR: 1.9, 95% CI: 1.18-3.10), while one RCT reported no difference in time to first RTW (no effect size reported). Two other studies did not report effect sizes, but concluded that the intervention had a positive influence on RTW. The review concluded that the evidence supports the effectiveness of workplace-based RTW interventions.

Nevala et al. [22] focused on work accommodations, which consisted of the redesigning of work schedules, work organisation and work environment, assistive technology, assistance of others, special transportation and legislation. The review reported and concluded moderate quality evidence of specific types of work accommodations (vocational counselling and guidance, education and self-advocacy, help of others, changes of work schedules, work organisation, and special transportation) helping to maintain employment (OR: 0.58, 95% CI: 0.34-0.99) and increasing employment rate (OR: 5.61, 95% CI: 2.23-14.09) among physically disabled persons. However, one controlled clinical trial (CCT) reported no effect of workplace accommodation on RTW in persons with physical and cognitive disabilities (OR: 2.0, 95% CI: 0.77-5.23).

Table 2: Review and intervention characteristics of included reviews (n=9)

	First author (year), country	Type of studies included (N)	Diagnosis 1) participants (range) 2) age 3) % F gender 4) % employed at baseline	Type of intervention according to author(s) 1) Aim 2) Content 3) Disciplines
Medium-quality reviews (AMSTAR)	Clayton (2011), England, [18]	QL (20) UCS (5) CCS (4) CS (2) NR (17)	Long-term sick or disabled people* 1) NR 2) NR 3) NR 4) NR	Governmental RTW initiatives 1) Help long-term sick or disabled people into work 2) (A) Individual case management and job search assistance, (B) financial incentives, (C) medical rehabilitation and/or advice on health condition management to improve fitness at work 3) NR
	Gensby (2014), Denmark, [19]	PPD (10) NRCT (2)	(Non-) occupational illnesses or injuries (MSD 10x, mental disorders 2x) 1) 55320 (58-28518) 2) NR 3) NR 4) NR	Workplace disability management programmes 1) RTW 2) RTW programme provided by the employer, including early contact, active employee participation, disability case information and monitoring system, case management, modified work, workplace assessment, physical rehabilitation services, workplace accommodation, RTW policies 3) Multidisciplinary
	Van Oostrom (2009), The Netherlands, [20]	RCT (5)	MSD (5x), mental health problems (1x) 1) 749 (120-205) 2) NR 3) NR 4) NR	Workplace interventions 1) Prevent work disability by reducing barriers to RTW 2) Changes to the workplace or equipment, changes in work design and organisation, changes in working conditions or work environment, case management with worker and employer 3) Multidisciplinary
	Franche (2005), Canada, [21]	RCT (2) PC (1) PPDN (1) CS (1)	MSD, carpal tunnel syndrome, work-related injury and illness* 1) 58262 (104-55275) 2) NR 3) NR 4) NR	Workplace-based RTW interventions 1) Improving RTW outcomes 2) EC, RTWC, WEV, WA, HCP, physiotherapist, SP 3) Multidisciplinary
	Nevala (2014), Finland, [22]	RCT (1) CCT (1) PC (1)	Rheumatic diseases, TBI, MSD 1) 1060 (6-502) 2) 16-68 3) 15-100 4) NR	Work accommodations 1) Promoting and maintaining employment 2) Work accommodations, consisting of: redesign of work schedules, work organisation, the environment, assistive technology, assistance of others, special transportation and legislation 3) NR

	Type of outcome	Results
	RTW, defined as getting back to work or getting employment	(A) 2 CCS and 1 UCS reported that the intervention significantly enhanced employment rate ($p<0.05$). 2 CCS and 1 CS found no significant effect. 3 QL studies reported beneficial effects, 3 QL studies reported no effect and 6 studies (5 QL, 1 CS) were unclear. (B) No significant effect was found (1 UCS), evidence unclear (3 QL). (C) All 4 QL reported beneficial effects. No effect sizes were reported
	RTW, defined as time to first RTW, duration of sickness absence followed by RTW or reduction in lost days from work	All studies reported the included interventions to be effective in various outcomes related to work participation. However, no effect sizes were reported and it was not reported if there were significant differences between the intervention and control groups
	RTW, defined as time until first RTW after a period of sickness absence	A workplace intervention was more effective than CAU at the 12-month follow-up for time until first RTW (HR: 1.55, 95%CI: 1.32-2.16)
	RTW, operationalised as work disability duration and RTW rate	All studies reported effectiveness for the intervention, with 1 RCT reporting higher RTW rate (OR: 2.2, 95%CI: 1.04-4.80) and faster RTW (OR: 1.9, 95%CI: 1.18- 3.10). 1 RCT found no difference in intervention and control in time to first RTW and total work disability duration. No effect sizes were reported. 1 PC reported that RTW rate was higher when workers had a modified job to return to (RR: 1.93, 95%CI: 1.54-2.42). 1 PPDN and 1 CS reported positive effects but no effect sizes
	Employment, defined as getting employment, WR and RTW	1 RCT and 1 PC reported moderate evidence that specific types of work accommodations (vocational counselling and guidance, education and self-advocacy, help of others, changes of work schedules, work organisation, and special transportation) maintain employment (OR: 0.58, 95%CI: 0.34-0.99) and increases employment rate (OR: 5.61, 95%CI: 2.23-14.09). 1 CCT reported no significant effectiveness of workplace accommodation (OR: 2.0, 95%CI: 0.77-5.23)

	First author (year), country	Type of studies included (N)	Diagnosis 1) participants (range) 2) age 3) % F gender 4) % employed at baseline	Type of intervention according to author(s) 1) Aim 2) Content 3) Disciplines
Low-quality reviews (AMSTAR)	Bambra (2005), England, [23]	MM (10) QL (4) Survey (2)	Disability or chronic illness* 2) NR 2) NR 3) NR 4) 0	Governmental welfare-to-work programmes 1) Help individuals with a disability or chronic illness move into work 2) (A) Education, training and work placement. (B) Vocational advice and support services. (C) Strategies of in-work benefits. (D) Employer incentive schemes. (E) Physical accessibility initiatives 3) NR
	Désiron (2011), Belgium, [24]	RCT (3) PC (1)	CLBP, major depressive disorder, whiplash injury, TBI 1) 899 (NR) 2) NR 3) NR 4) 100	Occupational therapy interventions 1) RTW 2) (A) FRP vs. active individual therapy. (B) CAU vs. CAU + occupational therapy. (C) Progressive goal attainment vs. FRP. (D) Cognitive-didactic programme vs. skills development 3) Multidisciplinary
	Varekamp (2006), The Netherlands, [25]	PPD (2) PPDN (1) PTN (1) PT (1)	Kidney failure (2x), MS, rheumatic diseases (2x) 1) 851 (30-242) 2) NR 3) NR 4) 26-100	Vocational rehabilitation interventions including empowerment perspective 1) WR by means of solving work-related problems 2) (A) Education, assessment and counselling. (B) Education, peer interaction and individual exercises 3) Multidisciplinary
	Clayton (2012), England, [26]	QL (10) MM (5) RCT (1) Survey (6) NR (8)	Long-term sick or disabled people* 1) NR 2) NR 3) NR 4) NR	Governmental RTW interventions 1) Change employers' behaviour towards disabled people 2) (A) Anti-discrimination legislation. (B) Workplace adjustments. (C) Wage subsidies for employing disabled people. (D) Engagement of employers in RTW planning 3) NR

*Not specified which diagnoses.
Study design: CCS, controlled cohort study; CCT, controlled clinical trial; CS, cross-sectional; MM, mixed methods; NR, not reported; NRCT, non-randomised control trial; PC, prospective cohort study; PPD, pre-post design with control group; PPDN, pre-post design without control group; PT, post-test only with control group; PTN, post-test only without control group; QL, qualitative studies; RCT, randomised controlled trial; RTW, return to work; UCS, uncontrolled cohort study; WR, work retention.
Diagnoses: CLBP, chronic low back pain; MS, multiple sclerosis; MSD, musculoskeletal disorders; TBI, traumatic brain injury.
Intervention: CAU, care as usual; EC, early contact with worker by workplace; FRP, functional restoration programme; HPC, healthcare provider contact with workplace; RTWC, RTW coordination; SP, supernumerary replacement; WA, work accommodation offer; WEV, worksite ergonomic visit.

Type of outcome	Results
Gaining competitive employment, defined as increasing employment changes	(A) All 4 MM studies reported a positive impact on employment with 15-50% employment rate. (B) 1 MM controlled study did not find a significant difference in employment. 1 survey, 1 MM and 1 QL, reported an increase in employment from 18% to 26% (survey) and 75% (MM). (C) 1 MM study found no significant difference after intervention. 1 survey and 2 QL studies reported a positive influence of the intervention. (D) 2 QL studies reported a positive influence on employment. (E) 3 MM and 1 QL study found a positive influence on employment. No effect sizes were reported
RTW, defined as work-related outcomes (i.e. RTW, sick leave, employment status)	(A) FRP was more effective than active individual therapy in reducing the number of sick leave days (1 RCT). (B) Occupational therapy vs. CAU increases RTW (1 RCT). (C) Progressive goal attainment + FRP can lead to significant increases in the RTW (75% vs. 50%; 1 PC). (D) No differences in RTW between cognitive-didactic programme vs. FRP (1 RCT). No effect sizes were reported
WR, defined as employment status	(A) 1 PT reported that 47% of blue-collar workers retained job vs. 24% (controls) (OR: 2.8, $p<0.05$) and white-collar workers retained 47% job vs. 48% (controls). 1 PPD study found no significant differences. 1 PTN study reported that 14/19 persons retained their job. 1 PPD reported that delay in job loss was significantly longer in the intervention group ($p<0.05$), temporary or permant job loss 25/122, compared with 48/120 (controll) (OR: 0.58, $p<0.05$). (B) 34/37 employed persons retained their job compared to 24/104 unemployed persons who gained job a (PPDN). No effect sizes were reported
RTW, defined as getting back to work, getting employment or WR	(A) 4 surveys and 4 MM reported no change in employment. (B) 3 of 4 positive reporting studies found that adjustments (flexible work schedule, modified work) significantly increased WR (mean increase 26% and 56%, $p<0.05$) (OR: 2.9, 95%CI: 1.9-4.3) or reduced sickness absence, 6 studies (QL, MM) were unclear. (C) 1 RCT found a significantly higher RTW rate (85.2% vs. 71.9%, $p<0.0001$). 4 (QL, NR) found no effect. (D) 1 study found a significant difference in sick leave between intervention groups vs. controls ($p<0.05$). 4 QL studies reported a positive effect, 2 studies were unclear. No effect sizes were reported

Discussion

Main findings

The aim of this systematic review was to provide an overview of the available generic interventions that were reported to be effective in enhancing work participation of people with a chronic disease. Since many studies focused on interventions to enhance work participation of people with specific diseases, we included systematic reviews that gathered these specific studies in an overall systematic review, examining interventions in populations having different chronic diseases. The retrieved interventions which were reported to be effective were mainly directed at work and included changes in the work environment, changes in the work organisation and communication between the stakeholders involved. One review studied policy-based RTW initiatives, but reported inconclusive evidence for the examined interventions.

Work participation is a complex process, in which the demands of one's work and the personal abilities to meet job demands need to be in balance. Since decreased physical or psychological health is associated with impaired functioning both in daily life and work, [27-29] having a chronic disease could interfere with this balance by hampering the personal abilities to meet job demands, for example, through physical limitations, fatigue, pain, etc. [30]. Various factors influence the process of work participation which is either related to the disease or irrespective of diagnosis. Considering this last category, previous research indicated that work participation is influenced by both personal factors (e.g., age, education [31], gender [31-32], prediction of one's own RTW [31-33]) and work-related factors (e.g., heavy manual work [32], perceived control over work situation [33]).

Interventions to enhance work participation should therefore aim to restore the balance between personal abilities and job demands by modifying factors associated with work participation. This could be done either by making changes in the individuals themselves by enhancing person abilities to meet job demands, or by making changes in work by adjusting the work demands. In our search for interventions applicable in populations having different chronic diseases, the interventions that were reported to be effective were mainly focused on changes at work. This could indicate that interventions aimed at changes at work are more prone to facilitate people with a chronic disease, irrespective of their diagnosis, than interventions aimed at making

changes in the individuals themselves. It is possible that personal factors are more closely linked with the specific chronic disease of the worker, versus work-related factors which have no direct link with a specific diagnosis. In addition, some personal factors, irrespective of the diagnosis and association with work participation, are not amenable to change (i.e., age, education, gender), which is in contrast with the work-related factors (i.e., heavy manual work, perceived control over work situation) that could generally be modified by the interventions retrieved in this systematic review.

The majority of the retrieved interventions in this systematic review consisted of diverse combinations of multiple components, like workplace assessment, changes in the work environment or organisation, assessment and treatment of a physiotherapist, vocational counselling and guidance and education. This multicomponent approach is consistent with previous research indicating that interventions including multiple components are likely to be more effective than interventions consisting of a single component [34]. Since the retrieved interventions consisted of multiple components, it is not known which component is the most effective and useful in practice in enhancing the work participation.

A limitation of performing a systematic review of reviews is that, owing to the inclusion of reviews on the same subject, studies reported in reviews could overlap. In our systematic review, three studies were included in more than one review, which consequently could influence the conclusion. We found that excluding these studies would not change the results of the included reviews, with the remaining studies still reporting a positive effect of the interventions on work participation. Therefore, the overlapping studies did not change the conclusion of our systematic review. Another limitation is that, in our aim to include interventions which can be implemented in various chronic diseases, the total independency of diagnosis cannot be proven. However, interventions retrieved in this review were examined in populations including patients having both physical and mental diseases, indicating that these interventions are effective in enhancing work participation in a broad population.

Finally, although all reviews included one or multiple RCTs, CCTs or pre-post design studies with a control group, most reviews also included studies of inferior designs, limiting the strength of the evidence. For that reason, we could not prevent the limited available quality of some included

studies and the lack of high quality reviews regarding this subject. In addition, since the reviews frequently did not report the effect sizes of the intervention group, control group or both, there was not always a clear insight into whether the differences in effect sizes were clinically relevant. However, this systematic review strived to provide the highest available evidence by critically examining the quality of the included reviews and basing the conclusion on the medium quality and high quality reviews. More high quality research should examine if other interventions could be implemented in populations having different chronic diseases.

Implications for practice

Many reviews provide interventions for specific diseases in an acute phase. This review adds by providing interventions for people with a chronic disease who need to participate at work in the long term. Most of the reviews included in this systematic review reported favourable results for work-directed interventions. Although the interventions described in this review included participants with different types of chronic diseases, we cannot exclude the possibility that patients with certain chronic diseases would benefit less or more from certain intervention components. However, this systematic review provides an overview of interventions directed at work which were reported to be effective in populations having different chronic diseases, indicating that interventions directed at work can be applied more broadly than only for a specific chronic disease. Work-directed interventions could therefore be considered by OHPs as a generic approach in order to enable patients with a chronic disease to retain work or RTW, which could be tailored to the patient's needs. In addition, a generic approach could be used in practice for people having a chronic disease in which evidence of effective interventions is lacking.

Implications for research

In this systematic review of reviews, we identified several generic intervention strategies. However, almost half of the reviews were of low quality. In addition, many reviews did not include controlled studies in order to compare the effect of an intervention on work participation with care as usual or an alternative intervention. Further reviews should take these limitations into consideration, by including high quality research and by including more controlled studies

performed in populations having different chronic diseases.

Although several intervention components such as workplace assessment, workplace accommodations, changes in work environment, changes in work organisation, changes in work conditions and case management are described, it is unclear through which mechanisms the interventions are effective, and which of these components are most effective. Since previous research indicates that multicomponent interventions are likely to be more effective than interventions including a single component [34], there is a need for research that examines which combination of components is most effective in enhancing work participation of people with a chronic disease.

Conclusion

Various interventions were retrieved that were examined in populations having different chronic diseases. Of these interventions, one review examined interventions focused on policy-based RTW initiatives, which reported inconclusive evidence for the included interventions. The retrieved interventions were mainly focused at changes at work, of which the majority were reported to be effective in enhancing work participation. This could indicate that interventions directed at work could be considered for a generic approach in order to enhance work participation in various chronic diseases.

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Competing interests

None declared.

Provenance and peer review

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Appendix

Search strategy

PubMed, Date of search 10 February 2015:
return to work[mesh] OR (return to[tw] AND work[tw]) OR back to work[tw] OR work resumption[tw] OR work readiness[tw] OR employment[Mesh:NoExp] OR employment[tw] OR employability[tw] OR work retention[tw] OR job retention[tw] OR paid work[tw] OR stay at work[tw] OR sick leave[mesh] OR sick leave[tw] OR sickness absence[tw] OR absenteeism[mesh] OR absenteeism[tw] OR work ability[tw] OR work disability[tw] OR work status[tw] OR employment status[tw] OR work capacity[tw] OR rehabilitation, vocational[mesh] OR vocational rehabilitation[tw] OR vocational intervention*[tw] OR occupational rehabilitation[tw] OR work rehabilitation[tw] OR occupational therapy[mesh] OR occupational therapy[tw]) AND (MEDLINE[tw] OR systematic review[tw] OR meta-analysis[pt])
Applied: Limit from 2004/01/01 to 2015/03/01

Embase Classic + Embase 1947 – Present (OvidSP), Date of search 10 February 2015:
1. return to work/
2. (return to work or (return to adj3 work) or back to work).ab,kw,ti
3. work resumption/
4. (work resumption or work readiness).ab,kw,ti
5. employment/
6. (employment or employability).ab,kw,ti
7. employment status/
8. (employment status or work status or paid work).ab,kw,ti
9. (work retention or job retention or stay at work).ab,kw,ti
10. work capacity/
11. (work capacity or work ability).ab,kw,ti
12. work disability/
13. work disability.ab,kw,ti
14. absenteeism/
15. (absenteeism or sick leave or sickness absence).ab,kw,ti
16. vocational rehabilitation/
17. (vocational rehabilitation or vocational intervention or occupational rehabilitation or work rehabilitation).ab,kw,ti
18. occupational therapy/
19. occupational therapy.ab,kw,ti
20. medline/
21. medline.ab,kw,ti
22. systematic review/
23. systematic review.ab,kw,ti
24. meta-analysis/
25. meta-analysis.ab,kw,ti
26. or/1-19 [RTW or WR or vocational rehabilitation]
27. or/20-25 [systematic reviews or meta-analysis]
28. 26 and 27
Applied: Limit from 2004/01/01 to 2015/12/31

PsycINFO 1806 to Present (OvidSP), Date of search 10 February 2015:
1. reemployment/
2. (reemployment or return to work or (return to adj3 work) or back to work or work resumption).ab,id,ti
3. employment status/
4. (employment status or work status or employment or paid work or work retention or job retention or stay at work).ab,id,ti
5. employability/
6. (employability or work capacity or work ability or work disability).ab,id,ti
7. employee absenteeism/

8. (employee absenteeism or absenteeism or sick leave or sickness absence).ab,id,ti
9. vocational rehabilitation/
10. (vocational rehabilitation or vocational intervention or work rehabilitation).ab,id,ti
11. occupational therapy/
12. (occupational therapy or occupational rehabilitation).ab,id,ti
13. (medline).ab,id,ti
14. (systematic review).ab,id,ti
15. meta-analysis/
16. (meta-analysis).ab,id,ti
17. or/1-12 [RTW or work retention or vocational rehabilitation]
19. or/13-16
20. 17 and 18
Applied: Limit from 2004/01/01 to 2015/12/31

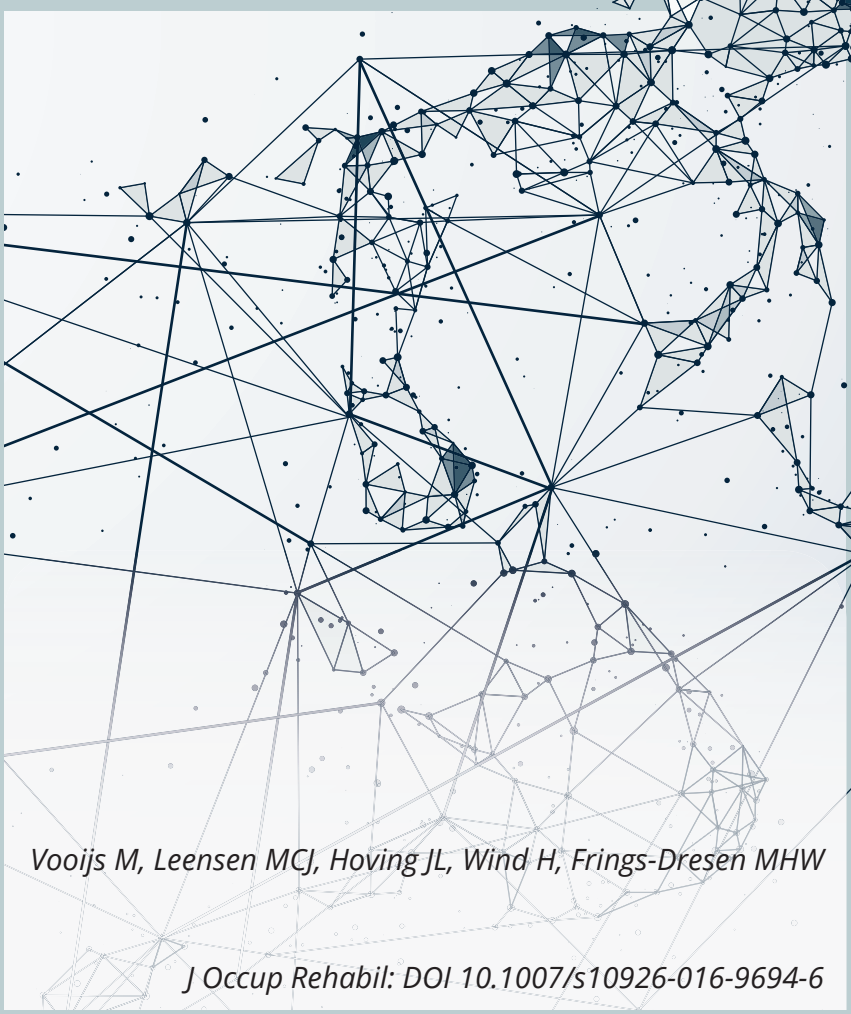
CINAHL Plus with Full Text (EBSCOhost), Date of search 10 February 2015:
1: (MH "Job Re-Entry")
2: SU job re-entry
3: (MH "Employment+")
4: SU employment
5: (MH “Employment status”)
6: SU employment status OR work capacity
7: (MH "Sick Leave")
8: SU sick leave
9: (MH "Absenteeism")
10: SU absenteeism
11: (MH “Occupational therapy”)
12: SU occupational therapy OR vocational rehabilitation OR occupational rehabilitation
13: (MH “Medline”)
14: SU medline
15: (MH “Systematic review”)
16: SU systematic review
17: SU meta-analysis
18: (S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12)
19: (S13 OR S14 OR S15 OR S16 OR S17)
20: (S18 AND S19)
Applied: Limit from 2004/01/01 to 2015/12/31

Cochrane Library, Date of search 10 February 2015:
1: MeSH descriptor: [Return to Work] explode all trees
2: MeSH descriptor: [Employment] explode all trees
3: MeSH descriptor: [Sick Leave] explode all trees
4: MeSH descriptor: [Absenteeism] explode all trees
5: MeSH descriptor: [Rehabilitation, Vocational] explode all trees
6: MeSH descriptor: [Occupational Therapy] explode all trees
7: "return to work":ti,ab,kw or "back to work":ti,ab,kw or "work resumption":ti,ab,kw or "work readiness":ti,ab,kw or "employment":ti,ab,kw or "employability":ti,ab,kw or "work retention":ti,ab,kw or "job retention":ti,ab,kw or "paid work":ti,ab,kw or "stay at work":ti,ab,kw or "sick leave":ti,ab,kw or "sickness absence":ti,ab,kw or "absenteeism":ti,ab,kw or "work ability":ti,ab,kw or "work disability":ti,ab,kw or "work status":ti,ab,kw or "employment status":ti,ab,kw or "work capacity":ti,ab,kw or "vocational rehabilitation":ti,ab,kw or "vocational intervention":ti,ab,kw or "occupational rehabilitation":ti,ab,kw or "work rehabilitation":ti,ab,kw or "occupational therapy":ti,ab,kw
8: MeSH descriptor: [Meta-Analysis] explode all trees
9: "meta-analysis":ti,ab,kw or "medline":ti,ab,kw or "systematic review":ti,ab,kw
10: #1 or #2 or #3 or #4 or #5 or #6 or #7
11: #8 OR #9
12: #10 and #11

Applied: Limit from 2004/01/01 to 2015/12/31

CHAPTER 5

Perspectives of people with a chronic disease on participating in work: A focus group study



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Abstract

Purpose: To explore solutions that people with a chronic disease use to overcome difficulties they experience regarding participating in work, and the support they require to identify or implement these solutions.

Methods: Focus groups were held to explore solutions and support requirements of people with a chronic disease. Participants were recruited through a research institution's patient panel, a patient federation and personal networks. Analysis was conducted by means of open and selective coding, using the MAXQDA software package.

Results: Five focus groups were held with nineteen participants with different chronic diseases. Solutions that were identified included learning to accept and cope with the disease, which is frequently supported by family and friends. Disclosing the disease to employers and colleagues, identifying active ways to help with duties, and implementing adaptations to the work environment were all effective solutions with the help, empathy and understanding of people in the work environment. Solutions mostly supported by patient associations included providing sufficient information about the disease, relevant help and protective legal regulations regarding work participation. Finally, health professionals could support solutions such as incorporating periods of rest, promoting self-efficacy and gaining insight into an individual's ability to participate in work.

Conclusions: People with a chronic disease suggested various solutions that can help overcome difficulties surrounding participating in work. Support from friends and family, patient associations, employers, colleagues and OHPs is needed to help identify and implement suitable solutions.

Introduction

A substantial number of people are affected by a chronic disease [1], with 28% of working-age people having a chronic disease [2]. According to the World Health Organization, a chronic disease is defined by a long duration and a generally slow progression [3]. A chronic disease can negatively affect work participation because of experienced limitations through the disease [4-7]. Consequently, many people with a chronic disease work fewer hours or are not employed at all [8,9].

There is an increasing focus on the individuals' self-management of the disease and its effects [10-14]. In addition, in the Netherlands, people with a chronic disease have a shared responsibility regarding participation in work [15], in which they are expected to work with OHPs to determine a plan of action to overcome the difficulties they experience [15]. In this plan of action, steps and solutions are established, in which both employer and employee are responsible for the execution of these steps to improve work participation of the individual [15].

Previous research shows that research on experiences of people with a chronic disease mainly focuses on the experienced limitations and difficulties [5-7,16,17]. This study adds by focusing on the solutions that are used by people with a chronic disease to overcome these difficulties. Earlier research regarding solutions only reported on work accommodations [18,19]. We aimed to extent this knowledge and to gather information on other solutions as well. Because earlier research found that many aspects are not related to a specific diagnoses [20,21] we aimed to find solutions, irrespective of diagnosis.

Although people with a chronic disease share responsibility in their process of participation in work, some situations challenge people to develop and implement solutions, in which support from others is needed. A pre-requisite for providing effective support to enable people with a chronic disease to participate in work, is to have a good understanding of their needs. This includes learning what type of solutions are used by people with a chronic disease, what type of support is required and who needs to provide the support. Therefore, this study focuses on obtaining information on the following research questions: What solutions do people with a chronic disease use in order to facilitate and manage their participation in work? And what support do they need in this regard?

Method

For this study we used a qualitative approach, to explore the perspectives of people with a chronic disease with respect to their participation in work. Since work plays an important role in the lives of people with different diagnosis and both with or without employment, we aimed to gather information on solutions used by people irrespective of their diagnosis and work status. We ran focus groups to help individuals -by gaining greater awareness of solutions others use- to become aware of the range of solutions they (un)consciously use themselves to participate in work. Items of the consolidated criteria for reported qualitative research (COREQ) [22] were used in order to improve the design and quality of reporting qualitative research. The Medical Ethics Committee of the Academic Medical Center determined that no ethical approval was required for this study (trial number: W15_174 # 15.0211).

Participants

We recruited participants for this study by sending invitations to members of a patient panel of the NIVEL research institution and to a large patient association (Ieder(In)). The members of both the patient panel and the association included people with a range of different chronic diseases, which they generally suffered from over a long period of time. In addition, members of both the patient panel and association had a relation with work, meaning that they either had employment or that they wanted or needed to RTW. Participants were also approached via a standardized notice posted on the social media sites of various patient associations. Lastly, we recruited participants through the researchers' personal networks.

Those people who indicated interest in participating received an information leaflet and were invited to send an email to one of the research team members (MV), providing their gender, age, chronic disease, work status and contact details. The researcher (MV) then contacted the applicants by telephone to provide additional information about the study and to explain the sampling procedure. The sampling strategy aimed to include an equal division of gender, age and work status and the inclusion of people with different diagnosis in each focus group. People were eligible to participate if they suffered from a chronic disease, were aged between 18 and 65 years and were either in employment or seeking employment. We defined a

number of specific categories of chronic diseases and included no more than three people from each in our overall sample in order to achieve an equal representation of various chronic diseases. We then scheduled focus groups with between four and six participants. Informed consent was obtained from all participants included in this study.

Data collection

The focus groups were held between October 2015 and December 2015, at the Academic Medical Center (AMC) in Amsterdam, the Netherlands. The duration of the focus groups was a maximum of two hours. The groups were run by a moderator and an observer, both working in the field of occupational health. ML, a female researcher, moderated the discussion in four focus groups and HW, a male researcher, moderated the discussion in one focus group. The observer (MV), a female researcher, took notes on non-verbal communication, group dynamics and the topics covered during the focus groups on a standardized form. At the start of each meeting, the moderator explained to the participants the purpose of the study and the role of the moderator and observer. In addition, participants were informed that all information obtained prior to or during the study would be handled confidentially and that an audio-recording would be made of the groups' discussions. In our aim to provide insight in the role of the individual with a chronic disease in their work participation, we formulated the questions: What solutions do you currently use or have you used in the past to overcome difficulties you face in relation to work participation? What support do you currently need or have you needed in the past to identify or implement those solutions? Who do you need or have you needed support from and in what form? No other people were present during the focus groups besides the participants and the researchers.

Data analysis

The recordings of the focus groups were transcribed verbatim. The transcripts were coded using the MAXQDA software programme (Verbi GmbH, Marburg, Germany), applying open and axial coding [23]. First, two researchers (MV and ML) coded one of the focus group transcripts independently using open coding [23], after which they discussed the codes until they reached a consensus. The first researcher (MV) then coded the remaining four

transcripts using open coding, followed by an additional check on one of these transcripts conducted by the second researcher (ML). Thereafter, the retrieved open codes were categorized in themes [23], which are described in the results. During the process the list of open and axial codes was repeatedly discussed by the entire team to check the codes and to establish consensus.

Results

As previously stated, we originally scheduled focus groups containing four to six participants. However, due to last minute cancelations, some focus groups contained only three participants. We initially conducted four focus groups, after which we decided to conduct another focus group meeting by means of a final check of data saturation. The fifth focus group yielded results in line with our previous findings; we therefore decided that data saturation had been achieved.

We conducted a total of five focus groups, each including three to six participants having different chronic diseases, such as: whiplash, kidney disease, rheumatic arthritis, osteogenesis imperfecta, visual handicap, dysmelia, Lyme disease, thrombophilia, repetitive strain injury, diabetes, cancer, and dystrophy. The total sample contained nineteen participants; ten women and nine men. The mean age of the participants was 50 (SD: 10.7; range 28-62) years old. A total of fiveteen people had employment, of which eleven worked in an organisation and four people worked as a freelancer.

Results per theme

Our findings are presented according to theme: the various solutions are set out first, followed by support required or received. Most of the results relate to those in employment, who shared their solutions for either retaining work or returning to work after a period of absence due to illness. Four of the participants were not currently employed, which we have specifically noted in our results. We included quoted statements made by participants during the discussions to illustrate our findings.

Acceptance and coping

The participants stated that having a chronic disease was difficult to accept. One solution reported was to actively work on accepting the disease and

its effects. In terms of coping strategies, the participants recommended focusing on what they could still do rather than what they could no longer do due to the disease.

> *"But you need to focus on what you can do, rather than on what you can't do. That is my motto in life." [Participant 18]*

Some participants mentioned that they had to 'start from scratch' to rebuild their personal and working lives. Others coped by 'pushing through' when they felt out of energy or when experiencing the limitations imposed by the disease. In contrast, one participant coped by concealing the chronic disease, so that others were not aware of it.

In terms of support, the participants indicated that they needed help learning to accept the disease, which they generally received from family and friends. OHPs also helped by acknowledging the disease. Participants found it valuable to receive guidance from a professional who had experience dealing with their specific disease. One participant with multiple morbidity needed a professional who could provide a useful overview of all the diseases concerned. The participants stated that it was important not to struggle with the disease alone.

Insight into abilities and limitations

Participants stated that one solution for facilitating work participation was to gain insight into their own abilities and limitations in relation to work, which they had done by reaching the limits of their abilities on one or more occasions.

> *"It's mainly about finding your own limits. The saying goes "once bitten, twice shy" – well ... I think I've been bitten at least ten times already ..." [Participant 11]*

Participants would have liked to receive help identifying their abilities and limitations from others, e.g. employers, coaches, family members, OHPs and other patients. One unemployed participant suggested that OHPs could help by providing information about what kind of jobs could be performed by people with specific chronic diseases.

> *"After I stopped the chemo, I felt I was ready to go back to work again just like before. Well, it didn't quite work out that way – and it took me far too long to realize it. And also if you are then applying for 40-hour jobs, you are certainly not on the right track. Someone should have pointed this out to me." [Participant 17]*

Boundaries

Another solution, according to the participants, was learning to set boundaries for both themselves and others, to help prevent participants from exceeding their physical abilities and to manage expectations.

Many participants had difficulty maintaining their boundaries, but found ways to help them to do so, such as setting an alarm in order to avoid working too long. Others received help from their employer in this regard.

> *"Whenever I work too long, my supervisor says 'Time to go home!'. Then she simply says: 'Since you've worked half an hour more today, tomorrow you can leave half an hour earlier.' So now she's really the one who sets my limits." [Participant 10]*

Participants also indicated a need for skills training to learn to communicate their boundaries to others.

Disclosure

A further solution reported was disclosing the chronic disease to employers and colleagues and making them aware of how it affects the participants' work and work environment. Participants stated that opening up about their abilities and limitations as a result of their disease generated understanding from employers and colleagues.

> *"So, being open allows you to let other people see what you can or can't manage and what your needs are." [Participant 1]*

One participant added that the explanation has to be given in simple and easily comprehensible terms to enable others to relate to it. Other participants noted that it helped to use humour in the explanation. Some unemployed participants stated that they preferred not to disclose their

disease due to previous negative experiences. In contrast, however, one participant chose to tell a potential employer about the disease during the salary negotiations, which proved to be a positive experience. Disclosure also paved the way for setting boundaries, making relevant agreements and enabling help from colleagues.

With regard to support, participants expressed a need for empathy, interest and understanding from employers and colleagues after disclosing their disease.

Obtaining information

Unemployed participants put forward obtaining information about companies who hire people with chronic diseases or about the advantages of hiring employees with chronic diseases for employers as a solution.

> *"So, basically it would help me to know of any companies that say "We hire people like you"." [Participant 12]*

Participants indicated that they needed support to acquire information about the disease itself, the types of help available, possible adaptations and how to communicate with health professionals. They stated that they currently acquired this information from patients' associations and hospital outpatient clinics. For those without employment, support was required to obtain information on regulations concerning work participation and organisations that are willing to hire people with a chronic disease. According to one unemployed participant, employers could also provide support by familiarizing themselves with the rules surrounding hiring people with a chronic disease.

Self-efficacy

The participants listed various solutions that centred on the need to believe in their own qualities and to effectively communicate these qualities in order to participate in work. They observed that had they succeeded in obtaining or keeping their jobs by knowing their value to the organisation and persuasively communicating this to their (potential) employer.

> *"Eight years ago, during a job interview, I said "I know perfectly well what I'm capable of. Once I'm hired, you'll see that I'm an extremely good worker. Except that, in this situation, I also have certain limitations. Unfortunately, I can't do any night work." That's essentially how I put it." [Participant 16]*

Participants indicated a need for courses to help gain insight into their strengths in order to become aware of what value they could hold for an organisation.

Skills development

The participants reported that taking courses and skills training is a valuable solution. Unemployed participants also mentioned that training on social skills and job application skills would be useful.

> *"I've received training on applying for jobs where I learnt how to write application letters. And during those sessions, I also learnt to take things step-by-step, focusing on one step at a time: not expecting to immediately get the job, but first focusing on writing a good letter. And only after that starting to look forward to being called for an interview. Then to just see the interview as a chance to gain interview experience – this in itself is a positive thing – instead of immediately expecting to get the job." [Participant 19]*

In addition, another unemployed participant put forward staying 'active' by doing voluntary work as a means of developing and applying necessary skills. Support that could be provided in this regard included receiving information about courses that are available, which is currently mostly provided by patients' associations.

Managing energy levels

Another solution introduced by participants was incorporating rest periods before and after work, in order to be able to effectively work the following day. One participant also incorporated rest periods during work by assigning certain tasks to his employees.

> *"But your body automatically starts operating at half-capacity. And as soon as you notice this, you have to accept that you are no longer capable of functioning at full capacity. Fortunately, in my line of work, this usually doesn't mean getting less work done. It only means that people need to work more independently and show me the results. In this way, I can take a short nap and return after an hour to take a look at what they have done with the scenes." [Participant 13]*

A second participant incorporated rest periods in both the private and working life by learning to strive for smaller goals. A third participant hired an assistant for the household in order to save energy, to help maintain a balance between work and personal life. In contrast, other participants chose to put all of their energy into their work and simply deal with the consequences of this effort, such as resulting lack of energy or pain, at home. Work was their first priority and their personal life came second. One unemployed participant sought a job involving less strain in terms of duties and hours in order to sustain work in combination with managing their chronic disease. Another solution mentioned was inquiring whether it would be possible to work on a part-time basis instead of full-time.

Suggestions relating to support included a coach who could help participants learn how to manage their energy during the day and to identify tasks that could be assigned to others. The participants also expressed a need for skills training to learn to set smaller goals in order to maintain their ability to work.

Asking for help

Various participants advocated actively asking others for help, for example, help from colleagues to perform certain work tasks that they were no longer able to perform due to their disease. They also recommended trading particular work tasks with colleagues in order to be able to perform more suitable tasks in view of their disease.

> *"Can you take care of the printing work for a bit, while I take over some of your tasks during that time?" Simply keep negotiating over the tasks to be done and, with a bit of help from your colleagues, you can manage." [Participant 4]*

Employed participants enabled help regarding necessary adaptations in their work or to their work environment. Unemployed participants reported asking help from OHPs in order to deal with problems regarding the rules governing or payment of their disability benefit now or in the near future. Some asked for help by spreading the word that they were searching for employment so that others could help find vacancies. One participant arranged the reintegration into work by actively approaching others for help.

The participants advised that here they needed information from OHPs on what forms of support are available. Employers could provide support by responding to the requests of employees with a chronic disease for help. One participant indicated that skills training on asking for help would be valuable.

Mutual agreements

Making clear agreements with employers about work duties, hours, location and doctor or hospital appointments during work hours, and communicating these agreements to colleagues was put forward as an additional solution. This helped participants to manage expectations and consequently they received fewer negative comments from their colleagues.

> *"During my performance appraisal interview, I agreed with my supervisor to make Friday my regular day off and to work at home on Tuesdays. So now it's down on paper and everyone knows about it." [Participant 2]*

Participants indicated a need for empathy and understanding on the part of both employers and colleagues so that they could feel that they had the opportunity to make and communicate such agreements. One participant found it helpful to have the occupational health professional set down details of the chronic disease in a report to take to the consultation with their employer. This made the disease 'official' for others.

Unemployed participants preferred to receive support in the form of mediation for both securing and retaining employment. They felt this could help them make agreements concerning hiring a person with a chronic disease and ensuring that the employee's abilities would not be exceeded while working.

Autonomy at work

The participants commented on the importance of having the autonomy to work from home or schedule their own work tasks. This helped them take the limitations imposed by their chronic disease and doctor or hospital visits into account when planning their work.

> *"If a deadline is set for Friday, for me it automatically shifts to the preceding Tuesday or Wednesday, so that if I have a bad day, I can still finish it on the Wednesday or Thursday." [Participant 3]*

The participants noted that employers could provide support in this regard by allowing participants a degree of autonomy in their work.

Adaptations to the work environment

A final solution the participants put forward was making appropriate adaptations the work environment, depending on their specific disease and needs.

They indicated that OHPs and patient organisations could give support in the form of providing information about environmental adaptations and supportive devices that are available. Employers can also support participants by approving and financing supportive devices and workplace adaptations.

> *"My employer paid for a specially adapted chair for me." [Participant 2]*

Types of support from health professionals

With regard to solutions and self-management, various participants said that, in their experience, they themselves were responsible for how they dealt with the effects of their disease at work, but that they also needed support. The preferred type of support from OHPs was to take a personal approach. In addition, one participant stated that professionals need to respond to the needs and requests of individual participants.

> *"I notice that there are many targeted solutions available, such as a specific course or a particular possibility. Whereas it should be the other way around – they should listen to you and ask you what you need, what kind of help you require. Asking the question is part of the solution." [Participant 11]*

In a similar vein, a second participant reported receiving unwanted support and agreed that the patient should be able to specify what kind of help is needed. A third participant wanted to be treated with trust instead of mistrust by OHPs. The participants preferred proactive types of support in which professionals actively provide solutions to participants. They also said that professionals should be both objective towards and easily accessible to those in need of support. Many stated that professionals often focused on just one aspect of their life, e.g. their medical status or work situation, whereas participants needed them to consider the 'big picture' of the patient's life. The participants mentioned that they felt as if OHPs were not adequately prepared for appointments and urged professionals to read participants' files before meeting them. One noted that professionals do not need to know all of the patient's symptoms, but should understand what complications their symptoms cause. One participant said that employers also need to receive support, because they are not trained on how to deal with employees with a chronic disease. Another asserted that organisations can support people with a chronic disease by providing easy accessible professional support, such as a company nurse.

Discussion

The purpose of this study was to explore the solutions that people with a chronic disease implement to facilitate their participation in work, and what support they need in finding or implementing solutions to overcome the various difficulties they experience. The participants reported a large number of solutions, either focused on themselves (e.g. accepting and coping with the disease, gaining insight into what they are now capable of, believing in themselves) or focused on their job and workplace (e.g. having a degree of autonomy at work, making adaptations to the workplace), for which they generally required support from their employer, colleagues and OHPs.

Although focus groups were held with smaller group sizes than intended, which may have had effect on group dynamics, we were able to gather various perspectives and to obtain data saturation. A strength of this study was the interaction amongst participants with various chronic diseases, in which we were able to gather information from all perspectives, irrespective of diagnosis. Through this interaction, participants were enabled to learn about other participants' experiences and solutions, which increased their awareness of the range of solutions for participating in work. However, our decision to focus on solutions that people have already implemented, may mean that we missed out on the perspectives of those who have difficulty finding solutions to participate in work. It is also possible that the participants who responded to our invitation, experienced more difficulty in participating in work than other people with a chronic disease. This may indicate that not all people with a chronic disease require solutions in order to participate in work or do not require help identifying and implementing them.

The themes in our study are in line with themes of other studies concentrating on promoting or facilitating factors regarding work conditions or quality of working life for people with a chronic disease [8,18,19,24]. One example is the importance of accepting the disease and learning to cope with it. This seemed as an important step – one that then facilitates the application of other solutions, particularly relating to work participation. Previous research agrees that accepting the disease enables people with a chronic disease to continue to work, provided that they know how to look after themselves in the work environment [24]. This implies that non-acceptance of a chronic disease can create barriers to participation in work. Our participants suggested that it should be among the tasks of OHPs to support people with a chronic disease in learning to accept and cope with their disease.

With regard to disclosing their disease to others, some of our participants opted for disclosure while others preferred non-disclosure. In a positive sense, disclosure can certainly facilitate the implementation of other solutions, such as obtaining support and adaptations to the workplace [24], being able to communicate a patient's capacity for work and setting realistic expectations [24,25]. On the other hand, negative experiences regarding disclosing the disease led some participants to decide not to disclose their disease to their employer or colleagues. Research has also revealed that some people are afraid to disclose their disease [26], often due to stigmatization

[27]. In summary, disclosing the disease may lead to more flexibility from participants' work environments, provided that they have empathic and understanding employers and colleagues.

Practical solutions, such as making adaptations in the workplace, were frequently identified in our study, as well as in earlier research as a means of facilitating work participation [5,18,19,24]. Our participants reported that next to workplace adaptations, also a high degree of autonomy provided a helpful solution. With regard to having autonomy, both our study as well as earlier research [18,19] stated that facilitating people to work from home, allowing them to plan their own work, trading work tasks with colleagues and incorporating rest periods helped them to retain their jobs. This implies that if people are afforded the opportunity to match their working hours and location to their abilities and limitations at the time by employers and colleagues, they are more able to participate in work.

In contrast to practical solutions, previous research as well as our participants, indicated that they have experienced more problems due to lack of understanding from employers and colleagues [18]. Support was reported to be important because good support effectively promotes participation in work [5,24,25,28], and was found to be necessary for people to obtain support in order to manage their disease and its effects themselves [29]. Our participants likewise reported that people themselves must allow and actively enable others to support them, so that they could get the support the needed.

The results of this study demonstrate that people with a chronic disease are capable of identifying effective solutions themselves and taking responsibility of their own participation in work. Based on these results, we urge OHPs to involve people with a chronic disease more closely in finding solutions to their participation in work. This leads to, not only greater acceptance, but also higher compliance with professional advice [30]. In addition, based on the results of this study, health professionals need to provide personalized advice to individual patients, taking account of their specific situation and personal circumstances. With regard to employers, we recommend that they communicate with the individual what they need to RTW or to retain work to facilitate in these solutions to the level they are able to.

Conclusion

This study reveals a number of solutions for overcoming difficulties in order to participate in work, from the perspective of people with a chronic disease. Various solutions are reported, either applying to the person itself or related to the work and work environment. Some require the help of others, in which family and friends, employers and colleagues, as well as health professionals can provide support to find and implement these solutions.

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Conflict of interest

The authors declare that they have no conflict of interest in relation to this study.

Ethical Approval

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000.

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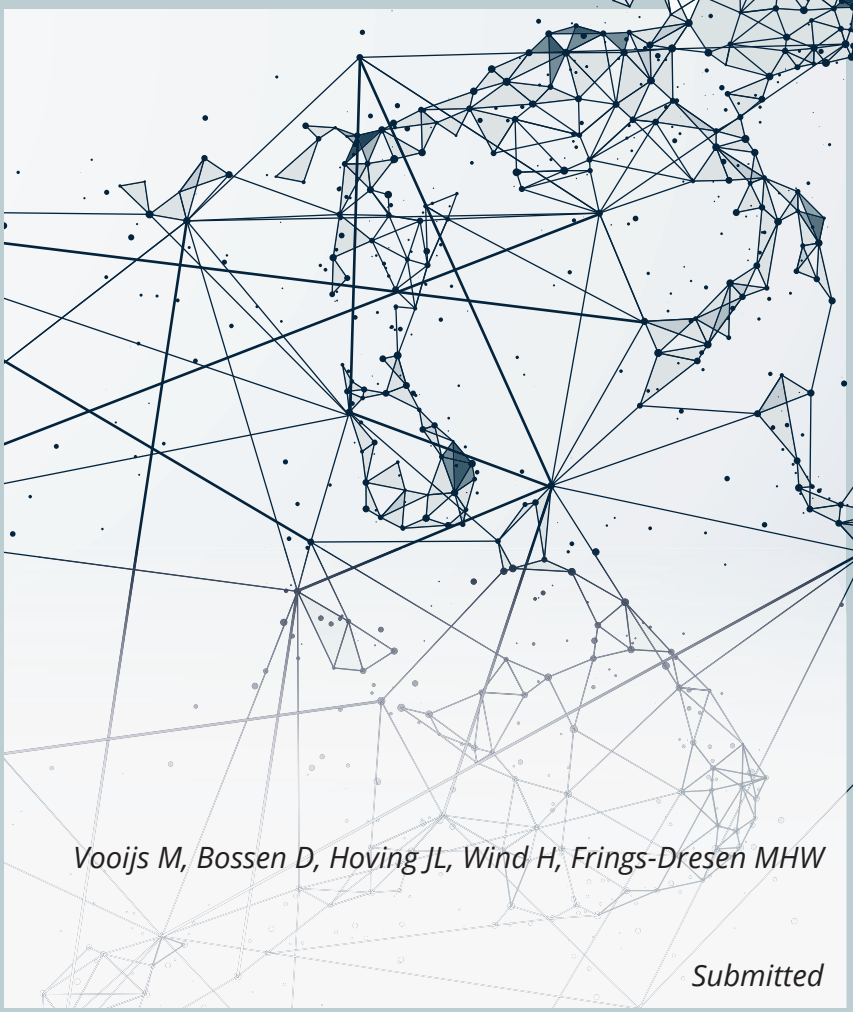
CHAPTER 6

Development of a training programme to facilitate occupational health professionals in the use of knowledge and skills provided by a guideline



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Submitted

Abstract

Purpose: Training needs and activities were explored to develop a training programme that aimed to facilitate occupational health professionals (OHPs) in applying knowledge and skills provided by a guideline.

Materials and methods: First, focus groups explored OHPs training needs. Second, learning objectives were formulated by the researchers. Third, experts in the field of education were interviewed to explore relevant training activities. Fourth, researchers integrated all the results into a training programme.

Results: Based on the training needs identified, we formulated seventeen learning objectives, e.g. being able to name influential factors and effective interventions, increase the individual client's role, and increase communication with an employer or medical specialist to enhance work participation of people with a chronic disease. The training activities identified by experts to ensure OHPs acquired and applied knowledge and skills were: a case study, role play, discussion of best practices and interviewing stakeholders, all performed in plenary sessions or small groups. Learning objectives and training activities were integrated into a six-hour training programme.

Conclusions: Various training needs and teaching activities were identified, which were integrated into a one-day training programme. This approach can serve as input for others developing training programmes to transfer knowledge and skills to OHPs.

Keywords: Occupational health, guideline adherence, occupational health physicians, training programme, medical education, constructive alignment, employment.

Introduction

In recent years, various evidence-based guidelines have been developed for OHPs. These guidelines are intended to provide more standardized, evidence-based guidance and assessment [1], which can positively influence the quality of professional care offered by OHPs to their clients [2,3]. One of the guidelines relevant to OHPs is the evidence-based document called "Work participation of people with a chronic disease". This guideline provides OHPs with knowledge concerning factors influencing work participation, effective interventions to enhance work participation, and the self-management of people with a chronic disease, irrespective of their specific diagnosis [8]. In the Netherlands, two types of OHPs are involved in the process of work participation: occupational physicians (OPs), who provide guidance to individuals aimed to support them in retaining or returning to work, and insurance physicians (IPs), involved in the assessment of the work ability of people with a chronic disease.

The evidence included in this guideline can provide OHPs with additional knowledge and enhance their skills, optimizing the guidance and assessment of people with a chronic disease in relation to their participation in work. Although knowledge and skills enhanced by guidelines can optimize the quality of occupational care [2,3], research has shown that even when OHPs have a positive attitude [4,5], the use of this knowledge and skills in practice is generally low [4-6]. Guideline adherence may be negatively influenced by various barriers, such as being unaware of knowledge provided by the guideline, or a lack of confidence in applying it in practice [6,7]. External barriers, such as perceived lack of time or costs, may also hinder OHPs reliance on the knowledge and skills offered by a guideline [6,7]. To address low adherence, this study focuses on how to facilitate OHPs' use of such knowledge and skills in daily practice.

Research indicates that active strategies that include multiple training activities [9,10] are key in teaching OHPs how to use new information. One already recognized effective strategy that would include these elements is the provision of a training programme. In our case, we aimed to develop a training programme focused on increasing OHPs' capability to apply the knowledge and skills provided. The results of studies of previous training programmes [10,11] have shown that OPs had more knowledge and confidence in applying the knowledge and skills in the guideline after participation in the programme

[11] and that IPs scored significantly higher on using knowledge and skills [10]. This indicates that a training programme is an effective way to increase OHPs' capability to use the knowledge and skills provided by guidelines.

Although training programmes have been developed to increase OHPs' capability to use knowledge and skills in daily practice, studies on *how* such training programmes are developed are limited. Therefore, this study focuses on the various steps in the development of a training programme to improve OHPs capability to use the knowledge and skills provided by the guideline, "Work participation of people with a chronic disease".

In addition, although research [12-14] highlights the relevance of the involvement of the target group during the development of the training programme, limited strategies have been developed with the help and input of the target group [15]. As the involvement of the target group leads to a better fit of the programme to the trainees' needs [13] and higher adherence of trainees to the programme [11,16], this study provides information on the development of a programme based on the needs and involvement of the target group. The research question of this study is: What are the OHPs' training needs and which training activities can facilitate OHPs' capability to use knowledge and skills provided by the guideline?

Materials and methods

A qualitative approach including four steps was used to develop the training programme. All procedures followed were in accordance with the Helsinki Declaration of 1975, as revised in 2000.

Step 1: Focus group meetings to identify training needs

As a first step, training needs were explored through focus groups meetings with OPs and IPs.

Participants

Two focus group meetings were held to explore the perspectives of the target groups; one meeting consisted of OPs, the other included IPs. OHPs who had experience in providing guidance or assessment of people with a chronic disease were included. OHPs were recruited through the researchers' personal networks. Informed consent was obtained from all participants.

Procedure

OHPs were recruited through an invitation via email, including an information leaflet with study information. The leaflet explained that all information obtained during the study would be handled confidentially and that an audio-recording would be made of the meeting. OHPs could indicate their interest in joining the study by sending an email reply to the first researcher (MV).

Based on the evidence, 53 recommendations were formulated, including hands-on information on what OHPs could do to optimize guidance and assessment in the support of the work participation of people with a chronic disease. Before the start of the meeting, OPs and IPs were asked to categorize each of the 53 recommendations and send their categorizations via email to the first researcher (MV). Recommendations could be categorized into one of four quadrants: 1) "Recommendation is part of the daily work of OHPs, has low priority for use in guidance or assessment", 2) "Recommendation is part of the daily work of OHPs, has high priority for use in guidance or assessment", 3) "Recommendation is not yet part of the daily work of OHPs, has low priority for use in guidance or assessment" and 4) "Recommendation is not yet part of the daily work of OHPs, has high priority for use in guidance or assessment".

During the focus group, the categorizations of each participant were added to each quadrant by the first researcher (MV) and displayed on a digital screen. Focus group discussion gave OHPs the opportunity to share ideas with each other. During the focus group meetings, the aim was to obtain consensus about the recommendations classified into the fourth quadrant, which were considered "not yet part of the daily work of OHPs, high priority for use in guidance or assessment". The duration of the focus group sessions was a maximum of two hours. Both meetings were run by a moderator working in the field of occupational health. MF, a female researcher, moderated the discussion with OPs. HW, a male researcher and IP, moderated the discussion in the focus group session with IPs.

After categorizing the recommendations, OPs and IPs were asked to indicate the knowledge and skills they thought were needed by OHPs to apply the selected recommendations in daily practice. During the focus groups, the first researcher (MV) took notes on the recommendations mentioned, and the knowledge and skills needed to apply the recommendations.

Data analysis

During the meetings, the selected recommendations were immediately processed into the quadrant by the first researcher (MV), allowing OPs and IPs to approve the final categorization. Notes made by the first researcher (MV) during the meetings were checked afterwards for completeness by both the first and second researchers (MV and DB) using the audio-recordings. Knowledge and skills needed to use the selected recommendations in practice were retrieved from the notes for each selected recommendation.

Step 2: Formulating learning objectives

Based on the selected recommendations and associated knowledge and skills required, the researchers (MV and DB) formulated the learning objectives for the training programme based on the approach of Kallenberg et al. [17], which provides a framework to guide the effective formulation of a learning objective. These learning objectives formed the backbone of the training programme. The learning objectives formulated were checked by the other researchers in the team (JH, HW and MF).

Step 3: Interviews to explore training activities

As a third step, interviews were conducted with experts in the field of education and in the development of training programmes to explore suitable training activities to attain the learning objectives.

Participants

A total of five interviews were held with experts who had extensive experience in developing education and training programmes for (occupational) health care professionals. Experts were recruited within the researchers' personal networks by sending invitations via email, including a study information leaflet. This leaflet explained that all information given prior to or during the study would be handled confidentially and that an audio-recording would be made of the interview. Informed consent was obtained from all participants.

Procedure

The aim of the interviews was to identify and gain in-depth knowledge on training activities that were relevant to and suitable for addressing the learning objectives. The interviews were conducted by the first researcher

(MV), with a maximum duration of 1.5 hours. The interviews were held at a location determined by the interviewee. Experts were asked to indicate training activities they considered suitable to attain the learning objectives formulated and the structure they recommended to implement those training activities.

Data analysis

The recordings of the interviews were transcribed verbatim. The transcripts were qualitatively coded using the MAXQDA software programme (Verbi GmbH, Marburg, Germany). The first researcher (MV) coded all transcripts using open coding [18]. These open codes were then categorized into themes by the first researcher (MV) using axial coding [18]. Both open and axial coding were checked by the second researcher (DB).

Step 4: Integrating the results into a training programme

Finally, the researchers (MV and DB) selected the learning objectives and training activities to be included in the final training programme. In making this selection, the researchers used the input of the OHPs and experts. The final training programme was checked by the other researchers.

Results

Step 1: Focus group meetings to identify training needs

The focus groups meetings were held in October 2016 and November 2016. Due to last minute cancelations, four OPs participated in the first focus group and three IPs participated in the second. Each of the seven participants (four women and three men) had extensive experience in guidance and assessment of people with a chronic disease in relation to work participation.

An overview of the recommendations categorized in the fourth quadrant, “not yet part of daily work, but high priority for use”, and the knowledge and skills needed according to the OHPs to apply the recommendations, is provided in Table 1.

Step 2: Formulating learning objectives

After the categorization of 53 recommendations and exploration of training needs, seventeen learning objectives were formulated. An overview of these learning objectives is provided in Table 1.

Table 1. Selected recommendations, reported knowledge and skills and learning objectives formulated.

Selected by:	Selected recommendation:	Knowledge/skills needed:
OPs IPs	OHPs should identify factors (psychological and work-related factors, factors related to health condition and functioning) which hinder work participation	Knowledge and skills to recognize factors that hinder work participation
IPs	OHPs should explore, with their client, whether these hindering factors can be overcome and if so, which approach and what support from the OHP is needed. What the client can do to overcome the obstacles identified should also be explored	Knowledge to recognize factors that hinder work participation
IPs	During the process of RTW, OHPs should consider the need for time to recover	IPs report they only need a reminder to apply the recommendation because they have the knowledge/ skills needed
OPs IPs	OHPs should determine with their client whether a multicomponent approach (physical, psychological and/or occupational health training) can be used to enhance work participation, preferably in an early stage of work disability	Knowledge about the effectiveness of providing an intervention in early stage of work disability
OPs	OHPs should advise employers/employees to draw up a reintegration plan together	Knowledge about how to provide advice to employers
OPs	OHPs should advise employers on the improvement of social and practical support at work for people with a chronic disease	Knowledge and skills on how to provide social support; to have the courage, and the communication skills to advise the employer
OPs	OHPs should recommend SE/IPS for individuals with a psychiatric disorder	Knowledge and the content of this specific intervention
OPs	OHPs should support the role of clients in work participation, by providing advice and guidance, and stimulating individuals to be actively involved	Knowledge and skills on how to stimulate own role in work participation

	Learning objective formulated:	Training activities reported:
	The OP/IP has knowledge of factors that hinder work participation, either related to the individual or to the work	Reading the guideline, case study
	The IP has knowledge of the effective interventions available which can be used to alter the influence of these hindering factors	Reading the guideline, case study
	The IP knows that individuals may need recovery time during the process of RTW	Reading the guideline, case study
	1: The OP knows why using a multicomponent intervention is important to alter the effects of hindering factors 2: The OP has the skill to evaluate at an early stage whether participation in work can be supported through use of a multicomponent approach	1: Reading the guideline, case study 2: Case study (“patient journey”)
	The OP has the skill to evaluate whether the employer and the employee have prepared a reintegration plan together	Case study, card game, discussion of best practices and resistance, role play
	The OP has the skill to provide advice to the employer regarding the importance of social support from the work environment to the individual	Case study, card game, discussion of best practices and resistance, role play
	The OP has knowledge of the Individual Placement and Support (IPS) intervention and is aware of the groups in which this intervention could be used	Reading the guideline, case study
	1: The OP has knowledge from the document “Leidraad Participatieve Aanpak” 2: The OP is able to stimulate the role of the individual through the provision of advice and guidance	1: Reading the guideline, case study 2: Case study, discussion best practices (with use of motivational interviewing), role play, interviews

Selected by:	Selected recommendation:	Knowledge/skills needed:
OPs IPs	OHPs should assess to what extent their client is able and wants to take control of the work situation If necessary, OHPs should support their client's role in work participation	IPs report they only need a reminder to apply the recommendation because they have the knowledge/ skills needed OPs reported that knowledge is needed on how to assess the ability of the individual to take control of the work situation
OPs	OHPs should use newly available digital forms of self-management support	OPs reported that knowledge on the self-management tools available is needed
OPs	OHPs should provide information about client's rights/obligations, limitations and abilities associated with their condition in relation to work and forms of support to enable WR/RTW	OPs reported that knowledge about the recommendation should be provided
OPs	OHPs should advise employers on providing employees with space and time to determine their abilities and limitations in relation to work tasks and working hours	OPs reported that knowledge about the recommendation should be provided
IPs	OHPs and professionals in the curative health care sector should have mutual contact and/ or be aware of each other's intentions regarding support of the client	OPs reported they had the knowledge required. A training programme should promote collaboration between OHPs and other professionals
OPs IPs	OHPs should consult with curative care in the case of different perspectives on the diagnoses; if they want to harmonize the treatment plan; or when the recovery process stagnates	OPs reported that knowledge regarding the available guidelines and/or protocols for the professionals involved is needed Skills to communicate with each other should be provided

*IPS: individual placement and support, RTW: return to work, SE: supported employment

Learning objective formulated:	Training activities reported:
The OP/IP has knowledge of how and the extent to which the individual with a chronic disease can take control in relation to their work participation	Reading the guideline, case study
The OP/IP has knowledge of the self-management tools available which can be used to increase the self-management skills of the individual with a chronic disease	Reading the guideline, case study
The OP has knowledge of the rights and obligations of the individual with a chronic disease regarding their participation in work	Reading the guideline, case study
The OP has knowledge of the document “Gesprekswijzer: Chronische aandoening en werk”	Reading the guideline, case study
IPs/OPs have the skills to collaborate in the guidance of a client	Including both professions in the training programme, case study (“patient journey”)
1: The OP/IP has knowledge of the importance of cooperation with the professionals in the curative sector in the support of individuals with a chronic disease 2: The OP has knowledge about which approach can be used to communicate with the medical specialist	1: Reading the guideline, case study 2: Interview, discussing best practices and resistance. Experts discouraged training activities

Step 3: Interviews to explore training activities

Interviews were held in February 2017 and March 2017. Five experts (three men, two women) were interviewed to investigate which training activities could be used to attain the learning objectives (see Table 1). Below, we describe the training conditions reported and the methods of instruction and training activities mentioned.

Training conditions

The experts indicated several conditions that a training should fulfil. A training programme should reflect OHPs' daily practice, be challenging and include repetition. The training programme should be varied and entertaining and include frequent discussion between participants, reflecting on their learning experiences. In addition, trainees should feel comfortable during the programme and be able to learn from the "bottom up", i.e. exploring solutions to problems by themselves. The experts suggested that both OPs and IPs be included in the training programme, while one expert recommended that the training be provided by peers, in this case an OP and an IP.

Methods of instruction

Several methods to transfer knowledge and skills were reported. The experts often mentioned working in small groups which would, for example, allow OHPs to share best practices or work on a case study. In addition, one expert advised working in a "carrousel", in which OHPs work in small groups on specific topics. After working in groups, OHPs can share their learning experiences on either a general topic or a specific topic per group ('carrousel'), in a plenary setting. In this way, OHPs will be able to learn from each other's experiences. Working in pairs, for example when engaging in a role play, was also reported as a suitable method of instruction.

Training activities

In addition to methods of instruction, various training activities were mentioned as suitable to transfer knowledge and skills.

Reading the guideline

The experts recommended instructing trainees to read the guideline before the training programme, so that all participants start at a similar level of

knowledge. To support reading of the guideline, the experts indicated that OHPs should be advised to note the perceived value of the guideline to their daily practice. The experts also suggested the provision of a guideline summary, including all key messages of the guideline. Finally, to further support reading, the experts suggested a short film that explained the relevance of the guideline to their daily practice.

> "*But like knowledge, you can also offer that [i.e. knowledge] beforehand so that it [i.e. guideline] can be read in advance, or using other methods such as a film or e-learning. And I always think it's a shame to do those sorts of things [i.e. providing knowledge] in class, because that's the ideal place to go into greater detail."*

Knowledge and skills test

It was advised that a knowledge and skills test be administered before the start of the training programme. The results of such a test will provide trainers with input on baseline knowledge and skills. In addition, it can help OHPs realize discrepancies between their current behaviour and guidance and assessment practice according to the guideline. Making such discrepancies apparent was reported as helpful in increasing OHPs motivation to learn during the training programme.

Case study

Experts indicated that a case study would be a suitable way to apply the knowledge learned through reading the guideline. The experts recommended the use of a case study because OHPs are familiar with this kind of training activity, the activity reflects OHPs' daily practice and it activates them. While either the trainer or the trainees might suggest the case study, the experts emphasized the value of trainees submitting their own case study, ensuring the case study being realistic and reflecting OHPs daily practice. The experts reported the case study should be presented on paper, in a video or as a combination of both. Another suggested form of a case study was a "patient journey", which describes the process of work participation of an individual over a longer period, requiring the involvement of both OPs and IPs.

> "*You could take case studies for the rest of the time, to really go into detail. Because, in general, I think they [i.e. OHPs] are practical people. So I think case studies will really help them. Examples, allowing them to submit their own things [i.e. case studies], their own case studies in which they experienced problems or have questions about*."

Card game

An expert suggested developing a card game that would teach OHPs the importance of advising employers about the provision of social support to employees with a chronic disease. The card game would include examples of quotes by employers and individuals with a chronic disease regarding their experiences, for example those related to perceived social support in the work environment.

Interview of an individual with a chronic disease or a medical specialist

The experts suggested providing OHPs with the opportunity to discuss perspectives with other stakeholders involved, such as a representative of a patient association or a medical specialist, with the aim of gaining mutual understanding.

> "*In this case, I would invite someone to an appointment or for a Skype session. You see, he can relay his story but in this case, I think that a doctor [i.e. OHPs] would also like to give his opinion and that he [the medical specialist] can respond. This will result in mutual understanding. That the OHPs says, 'I'm saying this because of this reason', and the medical specialist says, 'but that is not possible because of this or that reason'. You know, that would lead to better understanding*."

Discussion of best practices

The experts reported that a discussion of best practices between the trainees would be a relevant training activity in relation to several learning objectives, with the aim of learning from one another and to facilitate collaboration between OP and IP. In relation to learning to stimulate an individual, one expert recommended explaining the principles of motivational interviewing.

Role play

The experts suggested that role play would be an effective training activity in relation to several learning objectives. They suggested that role play could take various forms: one suggestion was that two OHPs could play the role of an OHP or the employer, medical specialist or individual with a chronic disease. Other experts indicated that a neutral person should play the role of employer, the medical specialist or individual with a chronic disease. Another form of role play that was suggested, involved two people conducting the role play while the remainder of the group was permitted to intervene. The reported advantage of this form is the active involvement of all trainees. The experts added that the trainees should be handed a case study and/ or a list with questions so that OHPs can prepare themselves, and that after performing the role play, OHPs' experiences should be discussed, either in a plenary setting or in smaller groups. It was considered important that this training activity be used in an environment in which trainees feel comfortable within the group.

> "*OPs quite enjoy role plays with employers, because they are in the situation. (…) Something like "I've got Ms Janssen here, are there no suitable jobs for her" or "how are we going to keep her in employment". And the employer has the message "there are no suitable jobs and I'm not going to create them, either". Well, how do you move forward from here*?"

Discussion of resistance

The experts considered that it was valuable to inventory the current resistance of OHPs to performing certain work tasks, such as communicating with a medical specialist.

> "*You actually need to explore the roots of this resistance [contacting the medical specialist]. Then you can just ask why they aren't doing it."*

Letter

One expert suggested that OHPs write a letter to themselves, including what they had learned during the training programme. This letter could be sent to OHPs a few weeks after the training programme as a reminder.

Step 4: Integrating the results into a training programme

All of the information gathered in the previous steps was formulated into learning objectives and integrated into a training programme by the researchers. Based on the input of the OHPs and experts, the training programme would focus on six learning objectives: a) OP/IP has knowledge of influential factors, b) OP/IP has knowledge of effective interventions that can alter the effect of factors influencing work participation, c) OP/IP evaluates the use of a multi-component approach in an early stage, d) OP/IP is able to increase the role of the individual through counselling and guidance, e) OP/IP is able to communicate with the employer about the reintegration plan and provides advice on the importance of social support from the workplace, f) OPs/IPs are able to collaborate in the guidance and assessment of people with a chronic disease. Each of the learning objectives was matched with a training activity considered suitable for OHPs to acquire the knowledge and skills needed. This knowledge and the skills to be addressed were incorporated into a training programme of six hours, which would be provided by two trainers – an OP and an IP. Table 2 presents an overview of the programme.

Table 2. Training programme based on learning objectives formulated

Part	Training activity	Aim
Homework	1: Trainees read the guideline 2: Trainees report value of the guideline 3: Trainees send case study 4: Trainees complete knowledge and skills test	1: Trainees start with an equal level of knowledge 2: Trainees made aware of the value of the guideline in daily practice 3: Training includes case studies which relate to daily practice 4: Trainees realize there is a discrepancy between current behaviour and behaviour according to the guideline
Entry participants	1: Trainers welcome participants individually, shaking hands 2: Trainees receive a folder with the guideline, summary and programme outline	1: Trainees feel welcome and at ease 2: Trainees are informed about training programme and guideline
Introduction trainers and training programme	1: Trainers introduce themselves using a PowerPoint presentation 2: Trainers explain their aim of providing a stimulating programme with many learning opportunities 3: Trainers describe the programme	1: Trainees are informed about the role and background of the two trainers (one OP, one IP) 2: Trainees are motivated and energized 3: Trainees are provided with structure
Introduction participants/ discuss value of guideline	Trainees exchange names, their profession and perceived value of the guideline for four minutes with another trainee. After four minutes, trainees switch to another trainee	Trainees become acquainted with other trainees and professions. Discussion of value sets a positive norm concerning the use and value of the guideline and makes trainees realize what value the guideline may have for their work
Coffee break	NA*	Trainees and trainers have a moment to rest and recharge energy levels
Value guideline	1: Trainers guide plenary discussion of the value of the guideline 2: Trainers guide plenary discussion of their need for knowledge in the training programme	1: Trainees realize what value the guideline may have for their work 2: Training fits trainees needs as much as possible
Factors	1: Trainees work in groups of four (two OPs/two IPs) on a case study including influential factors 2: Trainees indicate when to inventory factors on a patient journey in groups of four (two OPs/two IPs)	1: Trainees recognize influential factors in a case study 2: Trainees learn when to inventory influential factors
Interventions	1: Trainees work in groups of four (two OPs/two IPs) on a case study 2: Trainees indicate when to use interventions on a patient journey in groups of four (two OPs/two IPs)	1: Trainees name and use effective interventions to change negative influential factors 2: Trainees learn that an intervention should preferably be used at early stage in the patient journey
Collaboration with employer	1: Trainees discuss best practices and perform a role play in pairs (one OP/ one IP) 2: Trainees indicate when collaboration is needed on patient journey (in pairs)	1: Trainees obtain skills to better communicate with the employer 2: Trainees learn when collaboration with the employer is important

Part	Training activity	Aim
Lunch break	NA*	Trainees and trainers have a moment to rest and recharge energy levels
Structure	Trainers explain the remaining programme	Trainees are provided with structure
Discussion of the cases	Trainers guide trainee plenary discussion of factors and interventions identified and the reasons for collaboration	Trainees learn from other trainees' experiences regarding inventory of factors and interventions, and the use of collaboration
Own role of client	1: Trainees watch a short introductory film 2: Trainers introduce the subject with use of PowerPoint 3: Trainees formulate questions in pairs (either 2 OPs or 2 IPs), which may stimulate the role of individuals with a chronic disease	1: Trainees are introduced to the idea of the client's own role and obtain knowledge about the value of equal communication between "patient" and doctor 2: Trainees obtain knowledge about the effect on the individual with a chronic disease of being given a role 3: Trainees learn how to stimulate the role of the individual with a chronic disease
Coffee break	NA*	Trainees and trainers have a moment to rest and recharge energy levels
Discuss of 'patient journey	Trainers guide plenary discussion regarding the patient journey	Trainees obtain knowledge about when to discuss factors and the early use of an intervention
Individual evaluation of learning objectives	Trainees write a letter to themselves	Trainees have a reminder of lessons learned in the training programme
Evaluation and closing of training programme	1: Trainers answer any of the trainees' remaining questions 2: Trainees evaluate training	1: Trainees are able to share additional questions 2: Trainers acquire insight into trainees' experiences

*NA: Not applicable

Discussion

The objective of this study was to explore OHPs' training needs and relevant training activities to develop a training programme that would facilitate the use of knowledge and skills provided by a guideline. The OHPs reported various training needs. Based on this, several learning objectives were formulated, such as the ability to name influential factors and effective interventions, being able to empower the individual to take an active role, and being able to communicate with an employer or medical specialist to enhance participation in work. The experts reported various training activities to attain these learning objectives, including reading the guideline, working on a case study, conducting role play, discussing best practices and interviewing stakeholders. These activities could be undertaken in a plenary setting, but also in small groups working on either similar or different subjects. The training needs and training activities mentioned were integrated into a six-hour training programme.

The steps used in the development of the training programme were in line with the "theory of constructive alignment", which emphasizes the formulation of learning objectives as a core element. Subsequently, training activities and assessment methods should be aligned with and focused on obtaining these learning objectives [20]. By formulating the learning objectives in the initial phase of the development process and then determining the appropriate training activities, the development of our training programme accords with the theory of constructive alignment.

Research has shown that using the principles of constructive alignment improves trainees' learning experiences and facilitates trainees' attainment of the intended learning objectives [20]. In addition, studies indicate that trainees who complete "constructively aligned training programmes" are more likely to adopt deep-learning approaches [21]. This means that trainees are able to integrate new information into their current set of knowledge and skills. Deep learning, unlike surface learning, does not entail simply memorizing the materials, but facilitates the understanding and use of the information [22]. As our aim was for OHPs to apply the new information in practice, developing the training programme according to the principles of constructive alignment was considered the most effective way to facilitate this.

In addition, both the formulation of learning objectives and the training activities identified focused on stimulating the trainees to learn through their own experience and through discussion with peers. Examples of such training activities are a case study, role play or the discussion of best practices. According to Bloom [22], the opportunity for OHPs to learn through their own experience, discuss with each other and think critically about the knowledge imparted also greatly contributes to the process of deeper learning by trainees, which in turn facilitates application [22,23]. Many of the training activities suggested, such as a case study or role play, also reflect OHPs' daily practice, which enhances the linking of new information to the OHPs' current knowledge base. As research reports that such training activities (bottom-up, interactive and reflecting daily practice) are key to improving skills, attitudes and behaviour [20,24,25], the training activities are likely to be effective in facilitating OHPs in applying the knowledge and skills.

One strength of this study is that we included OHPs in the development of the training programme. Both constructive alignment theory [20] and adult learning theory [12] emphasize the importance of focusing on learning objectives that have the greatest relevance to trainees' work, as it increases the motivation to learn. By including OHPs in the development of the programme, we aimed to ensure the learning objectives and training activities corresponded to their needs [13] and thereby would positively affect their motivation. In addition, as research shows that including the target group can positively influence adherence [11,16], we considered that developing the programme with OHPs would positively influence their compliance with it and facilitate the use of knowledge and skills provided by the guideline.

We integrated the training activities into a one-day training programme. One advantage of undertaking all teaching activities in one day is that the time required of OHPs to complete the programme is minimized. This facilitates feasibility of uptake, as it limits strain on OHP performance of daily work tasks. However, research has shown that in striving to change behaviour, relapses in old behaviour can occur [26]. As we provide a one-day training programme, this could limit the uptake in the long term. Therefore, one could consider preventing relapses in behaviour [26] by organizing follow-up educational sessions.

This study provides information on one type of approach that could be followed to develop a training programme to facilitate use of knowledge and

skills. We are aware that there are multiple ways to develop such programmes, but we aimed to develop a solid and effective training programme by including the target group in the development of the programme and by taking into account the principles of adult learning [12] and the theory of constructive alignment [20]. The steps described in this study can serve as input for researchers and developers of occupational guidelines on how to develop a training programme aimed at facilitating the use of the knowledge and skills addressed by such guidelines. A further feasibility study is needed to determine whether such training activities are indeed effective in facilitating the application of new knowledge and skills by OHPs.

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Declaration of interest

The authors report no conflicts of interest.

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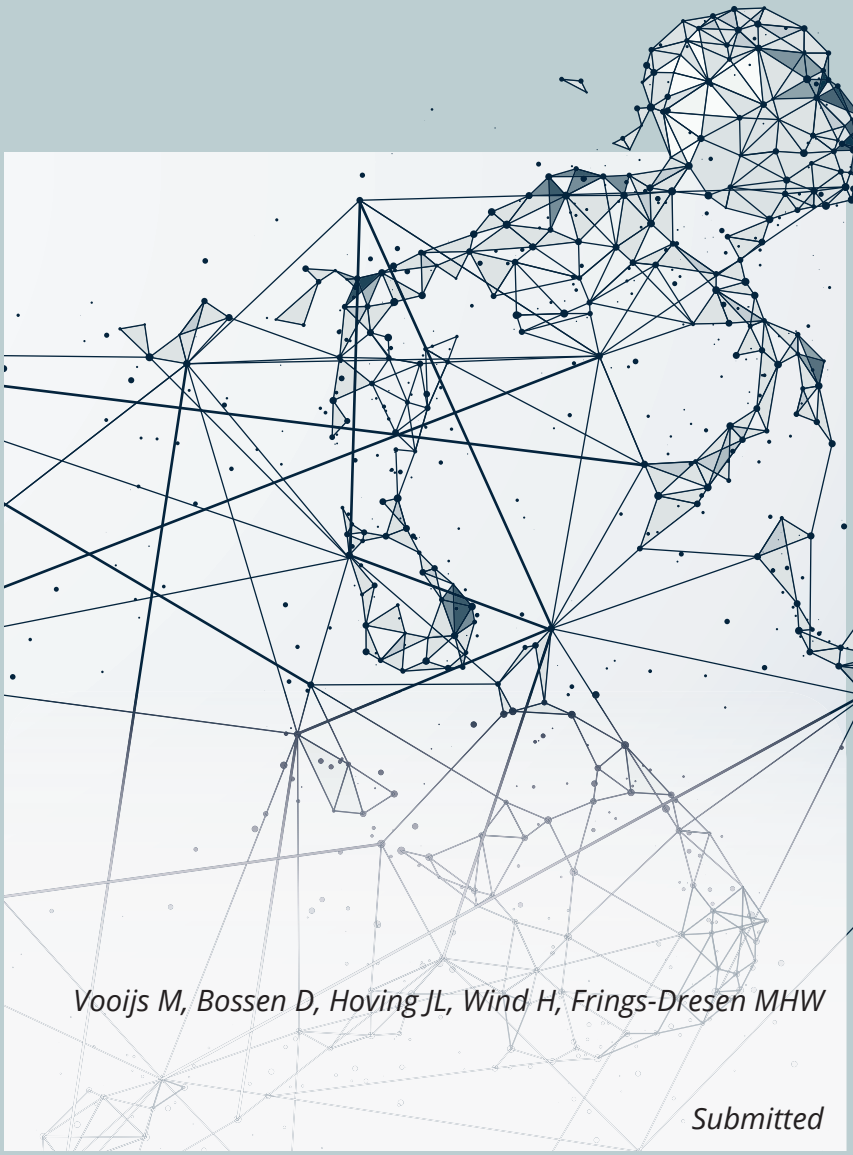
CHAPTER 7

A training programme facilitating guideline use by occupational health professionals: A feasibility study



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Submitted

Abstract

Background: To evaluate whether a training programme is a feasible approach to facilitate occupational health professionals' (OHPs) use of knowledge and skills provided by a guideline focusing on work participation of people with a chronic disease.

Methods: The perceived acceptability, implementation and limited efficacy of the training programme were evaluated to determine its feasibility. Acceptability and implementation were evaluated using statements rated by OHPs on a 10-point visual analogue scale after the training programme. Answers were analysed using the descriptive statistics program SPSS. Barriers to and facilitators of implementation were explored through open-ended questions after the training programme, which were analysed by grouping together similar concepts. Limited efficacy was evaluated by measuring the level of knowledge and skills at baseline (T0), after reading the guideline (T1) and after completing the training programme (T2). Scores were analysed using a non-parametric Friedman test and post-hoc Wilcoxon signed rank tests (two-tailed).

Results: The 38 OHPs found the training programme acceptable, judging that it was relevant (M: 8, SD: 1), increased their capability (M: 7, SD: 1), adhered to their daily practice (M: 8, SD: 1) and enhanced their guidance and assessment of people with a chronic disease (M: 8, SD: 1). OHPs found that it was feasible to implement the programme on a larger scale (M: 7, SD: 1) but foresaw barriers such as 'time', 'money' and organizational constraints. The facilitators that were reported primarily related to the added value of the knowledge and skills to the OHPs' guidance and assessment tasks and that the programme taught them to apply the evidence in practice. The Friedman test showed a significant increase in OHPs' knowledge and skills over time (X^2 (2) = 53.656, $p < 0.000$), with the median score improving from 6.3 (T0), 8.3 (T1) and 12.3 (T2). Post-hoc Wilcoxon signed rank test indicated a significant improvement between T0 and T1 ($p < 0.000$) and between T1 and T2 ($p < 0.000$).

Conclusions: The training programme was found to be a feasible approach to facilitate OHPs' use of knowledge and skills provided by the guideline, from the perspective of OHPs generally and with respect to their increase in knowledge and skills in particular.

Keywords: Occupational health, occupational medicine, guideline adherence, occupational health physicians, training programme, medical education, constructive alignment, employment.

Introduction

Previous research has shown that having a chronic disease negatively affects work participation, as people with a chronic disease are less often employed [1,2] and, when they are employed, experience difficulties in meeting physical or psychosocial work demands [3]. Occupational health professionals (OHPs) may support such people to improve their work participation. In the Netherlands, there are two types of OHPs involved: occupational physicians (OPs), who provide guidance to individuals to support work retention or return to work, and insurance physicians (IPs), who conduct a work ability assessment of individuals with a chronic disease.

The provision of recent and relevant evidence can support OHPs in their guidance or assessment tasks. Several guidelines have been developed, incorporating recent evidence, with the aim of improving the quality of guidance or assessment by OHPs [4,5]. One of these is the 'Work participation of people with a chronic disease' guideline, which includes evidence that can support the work participation of people with a chronic disease. It includes an overview of factors, interventions and input on collaboration among professionals to promote the work participation of individuals with a chronic disease, irrespective of their specific diagnosis.

Although the use of knowledge and skills provided by guidelines can lead to a higher quality of occupational care [4,5], guideline adherence by OHPs is generally low [6-8]. Previous studies have shown that guideline use is influenced by various factors that may act as barriers, which are related to the evidence in the guideline, the professional, the client or the environment [9,10]. One of these barriers is a lack of knowledge or skills of OHPs [9,10], which influences their capability, motivation and opportunity to use the evidence from the guideline in practice [11]. The knowledge and skills provided by a guideline might thus act to enhance practice, but studies recognize that active strategies are needed to increase their uptake and use [12,13]. In this respect, multiple educational methods have been found to be effective in facilitating learning [13,14]. On this basis, we developed a training programme to facilitate OHPs' capability, to increase use of the guideline mentioned above and the knowledge and skills it provided.

Before focusing on implementation on a large scale, Grol and Wensing [15] recommend first testing and running such a training programme with a smaller sample to evaluate whether the programme is a feasible approach

to facilitating knowledge and skills. In addition, performing a feasibility study provides valuable information on how the trainees perceive the programme, and whether they consider it to have contributed to their knowledge and daily practice [15,16].

Bowen [16] states that there are eight aspects which can be addressed in a feasibility study, namely: acceptability, demand, implementation, practicality, adaptation, integration, expansion and limited-efficacy testing [16]. These aspects measure how a training programme is perceived by the trainees, whether the training programme can be carried out as intended, whether it fits with the current system, whether it can be adapted for another target group, and whether it shows promise of being successful. As our aim was to study whether the training programme is feasible in facilitating OHPs' use of the knowledge and skills provided by the guideline, we focused on the aspects of 'acceptability', 'implementation' and 'limited efficacy'.

Acceptability is a common area of interest in feasibility studies, which focuses on whether trainees – in our case OHPs – perceive the training programme as helpful and as valuable to their daily practice. We also evaluated the aspect of 'implementation' to explore whether our training programme could be implemented as planned and proposed. Finally, we studied limited efficacy to evaluate whether, in a smaller sample of the intended population (i.e. OHPs), the training programme shows effectiveness in terms of an improvement in the participants' knowledge and skills [16]. The study aims to answer the research question: What levels of perceived acceptability, implementation potential and limited efficacy does our training programme for OHPs have, with respect to its aim of facilitating the use of knowledge and skills provided by a guideline?

Methods

To study the feasibility of a training programme for occupational physicians (OPs) and insurance physicians (IPs), acceptability, implementation and limited efficacy were evaluated. The OHPs were asked to fill in questionnaires at baseline (T0), after reading the guideline (T1) and after participating in the training programme (T2). The Medical Ethics Committee of the Academic Medical Center determined that no ethical approval was required for this study (trial number: W17_081#17.100).

Participants

OPs and IPs were recruited by contacting several professionals in the field, including a staff member from the professional association of OPs, a staff member the national training institute for OHPs, and two staff IPs working in the regions in which the training programme was held. These people then invited OHPs from their network to join the study by sending them an email, including a standardized information letter, which contained all the relevant information about the study, its content of the study and the nature of the training programme. In addition, it stated that participation in the study was voluntary. The OHPs who indicated they were interested in participating could register by sending an email to the first researcher (MV). OPs and IPs were included if they had experience in the guidance or assessment of people with a chronic disease. We aimed to recruit a total of 20-40 participants, to be divided into two training groups in different training locations. For each training programme, we aimed to include an equal number of OPs and IPs. Informed consent was obtained from all participants included in this study.

Training programme

The training programme was developed in collaboration with OPs, IPs and experts in the field of education of professionals. The process of the development of the training programme has been published elsewhere. In brief, as a first step, OP and IP training needs were explored by asking the OHPs what they would need to use the knowledge and skills provided by the guideline in practice. Based on the OHPs' reported training needs, researchers formulated learning objectives as a second step (see Table 1). Subsequently, experts in the field of education were interviewed to determine which training activities could be employed to best impart the knowledge and skills to OHPs. Finally, based on the input of both the OHPs and the experts, the learning objectives and teaching methods were integrated into a one-day training programme by the researchers.

The training programme was provided by two trainers, an OP and an IP. The first researcher (MV) was present during both training programmes and provided an explanation regarding the content of the guideline as well as assisting the trainers when needed. The second researcher (DB) was present at one training location and assisted the trainers when needed. The protocol of the training programme is presented in Table 1.

Table 1. Formulated training programme

Learning objectives		
• OPs/IPs have knowledge of factors influencing work participation • OPs/IPs have knowledge of effective interventions to reduce effect of factors negatively influencing work participation • OPs/IPs evaluate the use of a multi-component intervention at an early stage • OPs/IPs are able to increase the role of the individual through counselling and guidance • OPs/IPs are able to communicate with the employer about the reintegration plan and provide advice on the importance of social support from the workplace • OPs/IPs are able to collaborate together in the guidance and assessment of people with a chronic disease		
Part	**Training activity**	**Aim**
Homework	1: Trainees read the guideline 2: Trainees report value of the guideline 3: Trainees send case study 4: Trainees complete knowledge and skills test	1: Trainees start with an equal level of knowledge 2: Trainees made aware of the value of the guideline in daily practice 3: Training includes case studies which relate to daily practice 4: Trainees realize there is a discrepancy between current behaviour and behaviour according to the guideline
Entry participants	1: Trainers welcome participants individually, shaking hands 2: Trainees receive a folder with the guideline, summary and programme outline	1: Trainees feel welcome and at ease 2: Trainees are informed about training programme and guideline
Introduction trainers and training programme	1: Trainers introduce themselves using a PowerPoint presentation 2: Trainers explain their aim of providing a stimulating programme with many learning opportunities 3: Trainers describe the programme	1: Trainees are informed about the role and background of the two trainers (one OP, one IP) 2: Trainees are motivated and energized 3: Trainees are provided with structure
Introduction participants/ discuss value of guideline	Trainees exchange names, their profession and perceived value of the guideline for four minutes with another trainee. After four minutes, trainees switch to another trainee	Trainees become acquainted with other trainees and professions. Discussion of value sets a positive norm concerning the use and value of the guideline and makes trainees realize what value the guideline may have for their work
Coffee break	NA	Trainees and trainers have a moment to rest and recharge energy levels
Value guideline	1: Trainers guide plenary discussion of the value of the guideline 2: Trainers guide plenary discussion of their need for knowledge in the training programme	1: Trainees realize what value the guideline may have for their work 2: Training fits trainees' needs as much as possible

Part	Training activity	Aim
Factors	1: Trainees work in groups of four (2 OPs/2 IPs) on a case study including influential factors 2: Trainees indicate when to inventory factors on a patient journey in groups of four (2 OPs/2 IPs)	1: Trainees recognize influential factors in a case study 2: Trainees learn when to inventory influential factors
Interventions	1: Trainees work in groups of four (2 OPs/2 IPs) on a case study 2: Trainees indicate when to use interventions on a patient journey in groups of four (2 OPs/2 IPs)	1: Trainees name and use effective interventions to change negative influential factors 2: Trainees learn that intervention should preferably occur at early stage in the patient journey
Collaboration with employer	1: Trainees discuss best practices and perform a role play in pairs (1 OP/1 IP) 2: Trainees indicate when collaboration is needed on patient journey (in pairs)	1: Trainees obtain skills to better communicate with the employer 2: Trainees learn when collaboration with the employer is important
Lunch break	NA	Trainees and trainers have a moment to rest and recharge energy levels
Structure	Trainers explain the remaining programme	Trainees are provided with structure
Discussion of the cases	Trainers guide trainee plenary discussion of factors and interventions identified and the reasons for collaboration	Trainees learn from other trainees' experiences regarding inventory of factors and interventions, and the use of collaboration
Own role of client	1: Trainees watch a short film 2: Trainers introduce the subject with use of PowerPoint 3: Trainees formulate questions in pairs (either 2 OPs or 2 IPs), which may stimulate the role of individuals with a chronic disease	1: Trainees are introduced to the idea of the client's own role and obtain knowledge about the value of equal communication between 'patient' and doctor 2: Trainees obtain knowledge about the effect on the individual with a chronic disease of being given a role 3: Trainees learn how to stimulate the role of the individual with a chronic disease
Coffee break	NA	Trainees and trainers have a moment to rest and recharge energy levels
Discussion of patient journey	Trainers guide plenary discussion regarding the patient journey	Trainees obtain knowledge about when to discuss factors and the early use of an intervention
Individual evaluation of learning objectives	Trainees write a letter to themselves	Trainees have a reminder of lessons learned in the training programme
Evaluation and closing of training programme	1: Trainers answer any of the trainees' remaining questions 2: Trainees evaluate training	1: Trainees are able to share additional questions 2: Trainers acquire insight into trainees' experiences

Acceptability

To evaluate acceptability, the OHPs were asked to indicate to what extent they agreed with four statements on a 10-point visual analogue scale (VAS), with 1 indicating 'I completely disagree' and 10 indicating 'I completely agree'. The statements were: a) 'Because of the training programme, I am able to use the knowledge and skills provided by the guideline in my own guidance or assessment of people with a chronic disease', b) 'The training programme adheres to the daily practice of OHPs in their guidance and assessment of people with a chronic disease', c) 'The training programme is relevant to and useful in the guidance and assessment of people with a chronic disease', d) 'The training programme contributes to my knowledge and skills concerning the guidance and assessment of people with a chronic disease'. These statements were only assessed after the training programme (T2). Mean scores and standard deviations were analysed using descriptive statistics (SPSS Statistics 24.0).

Implementation

To evaluate whether the training programme could be implemented on a larger scale, the OHPs were asked to indicate on a 10-point VAS to what extent, in their opinion, the training programme could be implemented in practice, with 1 indicating 'I completely disagree' and 10 indicating 'I completely agree'. Finally, the OHPs were asked to report which barriers to and facilitators of implementation of the training programme on a larger scale they foresaw. This was an open-ended question. The questions on implementation were assessed after the training programme (T2).

Mean scores and standard deviations on perceived implementation were analysed using descriptive statistics (SPSS Statistics 24.0). Answers to the open-ended questions regarding barriers to and facilitators of implementation were summarized, and similar concepts were grouped together manually by the first researcher (MV). This categorization of similar concepts was checked by the research team (DB, JH, HW, MF).

Limited efficacy

To evaluate whether the training programme had an effect on knowledge and skills, they were measured at baseline (T0), after reading the guideline

(T1) and after participating in the training programme (T2) using a set of questions testing knowledge and skills. The test included eight questions, five addressing knowledge and three addressing skills. The latter were addressed by asking the OHPs to apply their knowledge to a case study. Questions were formulated by the first and second researchers (MV and DB) based on the learning objectives of the training programme.

Participants had to give short open-ended answers, which were scored between 0 and 2 points per question. Their performance was evaluated on the basis of the sum of all answers, resulting in a minimum total score of 0 and a maximum total score of 16 points. To achieve consistency and inter-rater reliability, a scoring rubric was used to assess the performance of the participants, which contained all of the correct answers to the questions based on the guideline. This was drafted by the first and second researchers (MV and DB). The questions formulated and the rubrics were checked by the research team (JH, HW, MF). Answers on the questions given by OHPs were scored for correctness by the second researcher (DB) and checked by the first researcher (MV).

The total scores per measurement for the entire sample were compared between T0 and T1 and T1 and T2. In the case of a normal distribution of the scores, they were analysed using repeated measurements ANOVA. In the case of non-normal distribution, the scores were analysed using a non-parametric Friedman test. In the case of a significant difference on the Friedman test, post-hoc tests were conducted using Wilcoxon signed rank tests to measure differences between T0 and T1 and T1 and T2 (two-tailed).

Results

Participants

A total of 38 participants joined the study, of which 20 worked as OPs, 16 worked as IPs and two worked as both an OP and an IP. An equal number of men (19) and women (19) participated in the study. The average age of the participants was 53 years old (SD: 10), with a range of 26 to 63 years. The OHPs had on average 21 years (SD: 9) work experience, with a range of 0.5 years to 35 years.

Feasibility

All participants completed the baseline questionnaire (T0) in May 2017. The T1 and T2 questionnaires were also completed by all participants and deployed on the day of the training programme, before the start of the programme (T1) and after the programme (T2). Both training programmes were held in June 2017.

Acceptability

Participants reported that the training programme increased their capability to use the guideline (M: 7, SD: 1). The participants generally found that the training programme adhered to their daily practice (M: 8, SD: 1) and was relevant to and useful in their guidance and assessment of people with a chronic disease (M: 8, SD: 1). Finally, the OHPs indicated that the programme contributed to their knowledge and skills related to the guidance and assessment of people with a chronic disease (M: 8, SD:1).

Implementation

With regard to the perceived feasibility of implementing the training programme on a larger scale, the OHPs indicated that it was feasible (M: 7, SD: 1). However, various barriers to and facilitators of implementation on a large scale were reported. Barriers such as ‘time’ and ‘money’ were reported to hinder implementation. OHPs also reported that not all managers would give approval for them to undertake the training programme because of organizational constraints.

Participant: "Managers won't give permission for employees [occupational physicians or insurance physicians] to take a day off for this [the training programme]".

Some OHPs foresaw barriers in relation to the composition of the training programme group. They reported that the size of the group would hinder uptake, or foresaw difficulties with the inclusion of an equal number of OPs and IPs in each training programme group. They also reported that the training programme required active commitment, and that not all OHPs will be motivated to actively participate in the training programme.

Barriers with respect to the content of the guideline were also reported, with some OHPs finding it difficult to read the guideline, or finding the evidence not applicable to every situation. It was also stated that in order for OHPs to use the evidence in practice, more familiarity with it is needed than is provided in a one-day training programme. Finally, several OHPs reported that they foresaw no barriers to the implementation of the training programme on a larger scale.

Participant: "I don't see any objections. This [the training programme] is essential for providing a rationale for the recommendations that are given".

A frequently reported facilitator was that OHPs were taught the relevance and value of the evidence included in the guideline, as some OHPs had trouble applying the theoretical evidence to their practice. The OHPs also reported that the evidence and training programme provided them with knowledge about and insight into factors and interventions applicable to a broad population. In addition, they reported that a training programme would improve and standardize the guidance and assessment of people with a chronic disease, and that it facilitated the use of knowledge and skills provided in the guideline.

Participant: "It [the training programme] provides an extra opportunity to gain experience with the guideline. The more often you pick it up and read it, the easier it is to get to grips with."

Several OHPs reported that one facilitator of implementation would be the inclusion of both OPs and IPs, as this stimulates trainees to collaborate and learn to work towards one goal, which is optimizing the guidance and assessment of people with a chronic disease. Finally, one OHP suggested that receiving accreditation points would also be a facilitator.

> *Participant: "It [the training programme] helps insurance physicians and occupational physicians to speak the same language, which helps improve the collaboration in occupational healthcare and reintegration."*

Limited efficacy

Since the data were found to have a non-normal distribution, the non-parametric Friedman test was used to assess whether OHPs' knowledge and skills had improved from baseline (T0), after reading the guideline (T1) and after following the training programme (T2). This test showed a significant improvement in knowledge and skills over time (X^2 (2) = 53.656, $p < 0.000$), with the median score improving from 6.3 (T0, range: 2-11), to 8.3 (T1, range: 3-13.5), and 12.3 (T2, range: 6-15.5). Post-hoc analysis using the Wilcoxon signed rank test showed a significant improvement between T0 and T1 ($p < 0.000$) and between T1 and T2 ($p < 0.000$).

Discussion

This study examined whether a training programme was a feasible way to facilitate OHPs' use of knowledge and skills provided by a guideline. Regarding acceptability, OHPs found that the training programme increased their ability to use the knowledge and skills in daily practice, and they experienced the training programme as useful, relevant and as contributing to their work. The OHPs also indicated that the programme could be implemented on a larger scale, although they foresaw both barriers to and facilitators of implementation. The barriers were mainly related to restrictions regarding 'time', 'money' and the OHPs' organizational constraints, while the facilitators were related to the added value of the knowledge and skills regarding the guidance and assessment of people with a chronic disease. Also learning to apply the evidence in practice was mentioned as facilitator.

Finally, with regard to limited-efficacy, the results showed that the OHPs' knowledge and skills improved after completing the training programme.

The opinions of the OHPs and their improvement in knowledge and skills highlight the need for a training programme to facilitate the use of knowledge and skills provided by the guideline. These results are congruent with other training programmes facilitating OHPs' use of knowledge and skills provided by guidelines, including a training programme for IPs [17] and a training programme for OPs [18]. Both programmes have been found to contribute to OHPs' abilities, with Zwerver et al. [17] reporting improvements in IPs' attitudes, self-efficacy and intention to apply the knowledge and skills provided by the guideline, while Joosen et al. [18] reported significant improvements in knowledge, self-efficacy and motivation to use the knowledge and skills provided by the guideline.

That the provision of a training programme can be an effective way of facilitating the use of knowledge and skills provided by a guideline has also been confirmed by Michie et al. [11], who indicated that increasing knowledge and skills can also increase capability ('do OHPs know how to use the knowledge and skills?') and thereby uptake of OHPs. To increase OHP's capability, we primarily included training activities (e.g. role play, a case study or discussion of best practices) which reflected daily practice, focusing on learning through personal experience and the ability to discuss issues with peers. Research shows that this approach facilitates the integration of new knowledge and skills with OHPs' current knowledge base, enhancing the OHPs' application of knowledge and skills [19,20].

Although the training programme primarily focused on increasing capability, our results showed that OHPs also found the training programme acceptable, relevant and of value to their work. This may indicate that 'motivation' ('do OHPs believe the knowledge and skills benefit them in their guidance and do they want and plan to use the knowledge and skills?') is also positively influenced by the programme. As the programme was developed in collaboration with OHPs to ensure that it matched their needs and preferences [15], this may have positively influenced OHPs' motivation.

With respect to implementation of the training programme on a larger scale, OHPs also reported various barriers and facilitators. These were in line with findings of previous studies, which showed that OHPs primarily reported barriers related to time, money and collaboration with others [9,10]. Michie et

al. [11] includes barriers and facilitators under 'opportunity' ('do OHPs have access to the knowledge and skills and are they supported to use them?'), one of the three conditions that are considered to facilitate uptake. Further implementation should therefore address the barriers and facilitators, as they can largely influence the uptake of the knowledge and skills provided by the guideline on a large scale [15].

A strength of this study is that the training programme included both OPs and IPs. This was done because one of the learning objectives focused on improvement of collaboration between OPs and IPs in their support of people with a chronic disease participating in work. The inclusion of both professions in a training programme had not previously been done, but was perceived as highly beneficial according to our trainees. The OHPs reported this to be a facilitator of the implementation of the training programme, because it supported collaboration and provided the OHPs with the opportunity to learn from each other's perspectives.

Another strength is that we developed a training programme in collaboration with OHPs, in which we attempted to follow the principles of constructive alignment. By including OHPs in the development of the programme, we aimed to best match the training content and method to the needs of the OHPs, which has proved to positively influence adherence [18,21]. Previous studies have reported that following the principles of constructive alignment facilitates the integration of knowledge and skills [19,20]. By doing so, we endeavoured to develop a constructive programme facilitating the use of knowledge and skills by OHPs in daily practice.

However, the method used to measure knowledge and skills has its limitations, as the training programme and questions were not fully congruent with each other. The taxonomy developed by Bloom et al. [22] classifies different levels of learning, ranging from 'remembering information' to the highest level of 'creating new information', with the individual being able to produce new information [22]. The training programme primarily focused on applying knowledge, one of the higher levels of learning, whereas the questions used to measure knowledge mainly focused on remembering, the lowest level of learning [22]. Although we attempted to include questions focusing on a higher level of learning by including questions related to skills based on a case study, we were not able to fully match the questions with the programme. We chose this method, as other approaches were not

feasible in the chosen setting and time frame of the training programme. Future implementation and evaluation of the training can expand insight by using observation of OHPs, allowing us to explore the level of appliance and integration of knowledge and skills by OHPs in daily practice [23].

The training programme was developed as a one-day programme to make it more feasible for OHPs to attend and to fit with their daily practice. As research shows that recall and use of knowledge and skills can diminish over time [24], it might be worth considering the addition of follow-up meetings aimed to increase the recall of OHPs. Further research might therefore also explore whether a training programme containing multiple sessions or including follow-up meetings is more effective while remaining a feasible approach for OHPs.

Conclusion

This study evaluated the feasibility of a training programme to facilitate OHPs' use of knowledge and skills provided by a guideline. The results of the study showed that OHPs considered the training programme to be feasible, and that the OHPs' knowledge and skills increased after completing the training programme. Thus, the programme can serve as a approach to facilitate OHPs' use of knowledge and skills provided by a guideline.

Declarations

Ethics approval and consent to participate

The Medical Ethics Committee of the Academic Medical Center determined that no ethical approval was required for this study (trial number: W17_081#17.100). Informed consent was obtained from all participants included in this study.

Consent for publication

Informed consent was obtained from all participants included in this study. All data has been anonymized.

Availability of data and material

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

MV designed the study, which received feedback from and was approved by all authors. MV and DB formulated the questions and rubrics, which were approved by all authors. After running the training programme, MV and DB examined all of the questionnaires. MV analysed the answers, and this was checked by all authors. Finally, MV drafted the initial manuscript, which received feedback from and was approved by all authors.

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CHAPTER 8

General discussion

General discussion

The aim of the present research was to facilitate OHPs in their support of people with a chronic disease in participation in work, through the provision of evidence. The main objectives were to obtain an overview of which factors and interventions influence the work participation of people with a chronic disease, and to evaluate how the use of evidence by OHPs can be facilitated, in order to optimise their guidance and assessment of people with a chronic disease regarding work participation. This chapter presents the main findings, followed by methodological considerations. Thereafter, the interpretation of the findings, implications for future research and recommendations for practice are discussed.

Main findings

Which factors affect the work participation of people with a chronic disease, independent of their diagnosis?

We conducted a systematic review to identify factors that influence work participation (**Chapter 2**). The factors we identified were related to an individual's health (e.g. comorbidity), to an individual's environment (e.g. feeling welcome back at work) or to an individual him- or herself (e.g. own prediction of RTW). We further explored personal and environmental factors that influence work participation, by studying employees' perceived value of work (**Chapter 3**). We found that respondents generally value work, mainly because work provides income, social contacts and the ability to contribute to society. Aspects that motivated or demotivated respondents to participate in work were related either to work or to the person him- or herself. Examples are positive or negative social contact with colleagues or clients, level of autonomy and work content.

Which effective interventions can enhance the work participation of people with a chronic disease, independent of their diagnosis?

As the influence of several factors can be changed through the use of interventions, we researched which interventions are effective in enhancing the work participation of people with a chronic disease (**Chapter 4**). The results showed that effective interventions were mainly focused on changes at work, and included changes in the work environment, workplace or work

equipment, work organisation, and communication between the stakeholders involved.

What role do people with a chronic disease have in improving their participation in work?

People with a chronic disease have the greatest interest in their participation in work. We therefore explored their perspectives on their role in participation (**Chapter 5**). Specifically, we asked what solutions they have to be able to participate in work and what support they need to find and use these solutions. Several solutions were reported, either focused on themselves (e.g. learning to accept and cope with the disease, gaining insight into what they are capable of, believing in themselves, getting information about the disease and types of available support) or focused on their job and workplace (e.g. disclosing the disease to the work environment, having a degree of autonomy at work, making adaptations to the workplace). They mostly needed support from OHPs, their employers and colleagues to find and use these solutions.

Can a training programme increase OHPs' use of the guideline recommendations in the guidance and assessment of people with a chronic disease regarding their work participation?

The evidence obtained was included in a guideline, after which recommendations were formulated to provide OHPs with hands-on knowledge and skills to integrate the evidence in their daily work. A training programme was developed to facilitate the use of these recommendations (**Chapter 6**). We therefore explored OHPs' training needs. Based on their training needs, learning objectives were formulated, such as 'being able to empower the individual to take an active role'. Next, experts in the field of training were interviewed to explore relevant activities that would help the participants achieve the formulated learning objectives. Reported training activities were: homework, case study, roleplay, discussion of best practices, debate, and interviewing an employer or medical specialist. Finally, learning objectives and training activities were integrated in a six-hour training programme.

We then evaluated the feasibility of the training programme (**Chapter 7**) by exploring acceptability, implementation and limited efficacy. The results indicated that trainees found the training acceptable, by reporting the training programme as 'relevant', 'useful' and 'increasing their capability'

regarding their guidance or assessment of people with a chronic disease. They also found the programme feasible to implement on larger scale, but anticipated some barriers and facilitators in this process, such as time, money and support of OHPs' organisations. Finally, the results on limited efficacy showed that the training programme increased OHPs' knowledge and skills both after reading the guideline and after participating in the training.

Methodological considerations

We used several research methods to gather evidence to facilitate OHPs, and to develop and evaluate the feasibility of a training programme. First, we conducted two systematic reviews to gather evidence on factors and interventions that influence the work participation of people with a chronic disease. This provided a broad overview of available international evidence. Second, we explored the perspectives of people with a chronic disease. People's perspectives, needs and expectations can contribute to the evidence as we can learn from their experiences and insights [1,2]. Insight into people's needs and expectations leads to research that better relates to people with a chronic disease [1-3], which may ultimately help OHPs to optimise their support of people regarding work participation.

Although we included various perspectives of people with a chronic disease and explored their solutions to participate in work, we might have missed some perspectives and solutions related to specific chronic diseases. For example, people with rheumatic diseases frequently experience morning stiffness [4]; these people might benefit from other solutions related to this limitation. In addition, several solutions provided by participants require a higher level of autonomy at work, such as the solution to have frequent breaks or to work from home [5]. This is in line with previous research, which showed that the level of autonomy an individual has at work influences the level of uptake of the reported solutions [6]. Therefore, the applicability of the solutions for people with lower levels of autonomy might be influenced. The tendency of solutions to focus on more autonomy at work may be explained by the fact that people with a lower education or social status, who generally have lower levels of autonomy at work, tend to be harder to reach as participants in studies [7]. Research has found that people with a

lower education or social status generally do not see the value or relevance of research [8], which can be reason why they do not participate in studies. As this is a common problem in research, more structural adaptations of the approach and research methods used should be made to include in research people representing the entire population. With respect to solutions per diagnosis and for people with lower levels of autonomy, OHPs should take into account that the solutions reported in this thesis serve as a framework, which may include useful solutions, that can be adapted and complemented with the individual's working and personal situation, in discussion with the individual.

As OHPs were to be the end-users of the evidence presented in this thesis, we also explored the perspectives of OHPs in order to optimise and facilitate their use of the evidence in daily practice. This was done by involving OHPs in the development of the training programme, which enabled us to adjust the programme to the needs of OPs and IPs [9-11]. This is a strength, as involving OHPs increases their ownership with respect to the training programme [12], which generally positively influences their motivation to adhere to the programme [12-14]. Although we aimed to develop an effective training programme by involving OHPs in the development of learning objectives [15], and aligned the learning objectives and training objectives according to the constructive alignment theory [9], we were not able to fully align the knowledge and skills test with the training programme. The aim of the test was to measure the increase in OHPs' knowledge of and skills related to the evidence. Although learning objectives and training activities were formulated to learn by personal experience in application, which according to Bloom et al. [16] facilitates the integration of the information, the knowledge and skills test focused primarily on memorising knowledge. Memorising is a lower order thinking skill, whereas applying knowledge is a higher order thinking skill [16]. Therefore, the knowledge and skills test could not indicate whether the knowledge is applied and fully integrated in OHPs' daily practice. Although in our approach other methods were not feasible due to the setup and time schedule of the training programme, future research can evaluate this by exploring the integration of knowledge and skills using additional research methods, such as observation of OHPs' guidance or assessment.

Interpretation of the findings

Value of work participation for individuals with a chronic disease

Our results, as well as previous research, show that people with a chronic disease often find working a challenge [17,18]. Individuals with a chronic disease can experience limitations due to their condition, such as the inability to move, fatigue or pain [19-22], that can hinder the performance of their work tasks [18,23,24]. We also know from previous research that receiving a diagnosis can have a large impact on an individual, which can temporarily or permanently influence the priority that work has for that individual [25,26]. The results presented in this thesis, however, show that many people with a chronic disease value work and want to participate in work. Participants' value work as it provides financial independence and social contact with colleagues or clients and the opportunity to contribute to society. They also indicated that work contributes to their mental and physical health [5].

That work has value for people with a chronic disease, even though they may experience difficulties at work, is in line with other studies. Van der Klink et al. [27] argued that in recent decades the value of participation in work has shifted from generating income to the ability to achieve societal and personal goals and values. This means that being able to participate in work provides an individual with the opportunity to attain goals and values such as personal identity, self-esteem and social contacts [28], which is congruent with our results; that is, our participants reported such values as social contact, ability to contribute to society, and the use and development of one's talents [29]. Generating income, and thereby financial independence, has thus become just one of the many values that can be attained through work. Following this perspective, most people can benefit from the opportunity to work and should therefore be supported to participate in work, since work provides the ability to attain goals and values.

Not only has the value of work changed in recent decades, but also the perception of 'working with a chronic disease' has shifted. Whereas the focus used to be on an individual's limitations and inabilities, the societal perspective now focuses on the individual and his or her capabilities. This concept underlying the capability approach [30-32] is that each individual has his or her own capabilities, based on personal resources or external characteristics. In this approach [30-32], the focus is no longer on the disease

alone, but on the 'bigger picture' of aspects that influence an individual's capability, which aligns well with the findings presented in this thesis concerning aspects that are independent of diagnosis.

Evidence facilitating support of people with a chronic disease

Although work participation in the Netherlands is supported by OHPs, participants in our research indicated that they experience many difficulties in their performance of work [5,29]. Many of these difficulties are independent of diagnosis, such as lack of appreciation by the work environment, the content of work tasks and uncomfortable work environment [29]. In accordance with the model developed by Michie et al. [33], providing OHPs with additional information can increase their capability, which may facilitate their guidance and assessment of people with a chronic disease.

Aspects independent of diagnosis

First, evidence was gathered on which factors and interventions influence work participation independent of diagnosis. The results show that many factors that influence work participation irrespective of specific diagnosis are related to the person, or to their home or work environment. Interventions that are effective in changing work participation mainly focus on changes made in the work environment. That many factors other than the condition itself influence work participation, is explained by research that found that factors associated with the specific health condition are mainly present in the acute phase, whereas personal and work-related factors have a stronger influence in the chronic phase of a disease [34,35]. This may explain why these factors are found to influence the work participation of people with a chronic disease.

These results are in line with the capability approach [30-32], which stresses the influence of factors related to the person him- or herself and of factors related to his or her home and work environment on a person's capability to participate in work. Also established models on work and health, such as the Job Demands Resources model [36] and the Person-Job-Fit model [37,38], focus on these personal and work-related aspects, as these models strive to match and balance the individual's capabilities and work demands. This emphasises that in addition to the disease, aspects of the person or his or her work environment deserve close attention in supporting the work participation of an individual with a chronic disease. Consequently,

for OHPs to support an individual's capability, all aspects (of which health is just one) are important and should be evaluated for the use of interventions and optimising support of people with a chronic disease regarding in work participation [30-32,39].

The added value of researching factors and interventions independent of diagnosis is the applicability of evidence for people with diagnoses in which limited evidence is available, and for people who are faced with co-morbidity. In addition, the results provide a manageable overview on which factors and interventions can affect participation in work. Based on this overview, OHPs can specify per individual which factors influence the individual's work participation and which interventions are relevant to use in his or her personal and work situation. In addition, to obtain a complete image of an individual's influencing factors and relevant interventions, the information independent of diagnosis can be complemented with information related to an individual's specific diagnosis. In sum, the broad overview facilitates OHPs' guidance and assessment in individualising the approach to the persons' resources, preferences and external characteristics.

Role of individuals

As it is beneficial to take into account individuals' perspectives, we explored which role individuals see for themselves by asking what types of solutions they use and what type of support they require to participate in work. The results show that people want to play an active role and that they use various solutions to retain or return to work. These solutions focus on individuals' personal resources and work or personal life. Examples are: accepting and learning to cope with the chronic disease, disclosing the chronic disease to the work environment (under the condition of a safe social climate), setting boundaries and getting help from colleagues.

This focus on the role of the individual in work participation is in line with current perspectives that stress the role of self-management of the disease and its effect on work participation [40-44]. The ability to manage one's own disease and life, including work participation, is reported by Huber et al. [45] as one of the six dimensions of the new definition of health, emphasising the importance of self-management. Other studies also focus on self-management by focusing on the empowerment of the individual [46,47] and 'shared-decision making' [48-52], emphasising the active role of

individuals with a chronic disease.

Researchers have found that in order for people to be capable of having an active role in work participation, they need information and skills to process the information, which is defined as 'health literacy' [53]. Literature on shared-decision making also stresses that it is important for the individual to have information in order to discuss with the professional the approach to take [48-52]. This is in line with our results, as our participants reported a need for information about their disease, the types of help available, possible adaptions and legislation with respect to working when faced with a chronic disease [5].

In addition, literature on empowerment also emphasises empowering an individual by increasing the individual's self-efficacy and developing his or her coping skills [46,47], which is confirmed by the solutions to remain in work or to RTW that our participants reported [5]. This may indicate that in order to support the role of individuals, OHPs could focus on, for example, providing information, supporting self-efficacy and assisting individuals to improve their coping skills. According to Bandura [54], OHPs can support an individual's self-efficacy beliefs by influencing four major sources, namely successful experiences of the individual, vicarious experience, verbal persuasion of others and the individual's physiological state.

Changes in occupational health professionals' support

We included evidence on factors, interventions and the role of the individual with a chronic disease in a guideline to provide OHPs with the evidence in a clear and manageable way. Michie et al. [33] indicated a guideline as a policy modality, in which they defined a guideline as a 'document that recommends or mandates practice'. Based on the evidence included in the guideline, we formulated recommendations so that OHPs have hands-on information about what they can do to optimise their guidance and assessment of people with a chronic disease. As these recommendations are not always integrated in OHPs' daily practice according to both people with a chronic disease [5] and previous studies focusing on the adherence of OHPs to recommendations [55-57], changes have to be made to increase OHPs' capability to use the evidence in daily practice.

Holistic approach

Even though research shows that OHPs are aware of the importance of personal and work-related factors, and indicate such factors to be important for sustained RTW [58], our results show that participants experience that these personal and work-related factors are not always addressed and evaluated by OHPs [5]. Participants in our study reported a need for OHPs to focus on 'the person' instead of 'the disease' [5], which confirms the need for a more holistic approach in OHPs' guidance and assessment. Research shows that the use of interventions in a holistic approach, involving both the worker and his or her environment, could facilitate individuals' RTW [59].

However, OHPs' adaptation of a holistic approach may deserve extra attention. Research found that OHPs tend to underestimate the impact of psychosocial and organisational features of the workplace [60], which may limit the extent of evaluation of these aspects. In addition, OHPs generally have a more narrow view on health and work participation compared with individuals with a chronic disease [45,59,60]. In their exploration of the definition of health, Huber et al. [45] state that professionals see health in a more biomedical way, in contrast to individuals with a chronic disease who perceive spiritual/existential and social aspects of health as equally important as the condition itself. In addition, research concerning RTW described the OPs perceived 'at-work functioning' as successful RTW, whereas employees frequently consider the more soft aspects of work participation, such as job satisfaction, work-home balance and mental functioning, as successful RTW [61]. This discrepancy in view may limit the evaluation of personal and work-related factors that were found in this research as important influencing factors.

Including individuals in communication

This discrepancy can be overcome through good communication between the OHP and the individual, incorporating both views on work participation. Although this would benefit the guidance and assessment of people with a chronic disease, participants in this research reported that they do not always feel that their OHP listens to them. They reported that OHPs come up with solutions, without listening to their specific needs, and want OHPs to first listen and then adapt a specific approach tailored to their preferences [5].

It could therefore be more beneficial if OHPs were to adapt a more

inclusive approach, by listening to the individual's perspectives, preferences and needs. Adopting a more inclusive approach can be facilitated through the use of the principles of shared-decision making, an approach in which health professionals and patients work together to choose the best course of action for each patient's particular situation [62]. This approach includes understanding the patient's situation, establishing which aspects require action [62,63], and discussing possible interventions [64] and how these fit with the patient's situation, after which a decision on a plan of action is made [63,65].

However, as this approach was developed for curative care, not all principles of shared-decision making might be applicable to occupational care. For example, IPs are responsible for objectively assessing and evaluating the extent and prognosis of individuals' work ability. Based on the work ability, the loss of income is determined, followed by the degree of disability. Therefore, they are not able to include the individual's preferences in this decision. In addition, not all people are likely to be able to manage their disease [53] and therefore experience difficulty playing an active role in their work participation [5].

In that case, OHPs can strive to actively involve the individual in the conversation. By doing so, they ensure that individuals' perspectives are included and that they feel heard, and the approach fits the individual's specific situation and preferences. This need for a more personalised approach was also indicated by participants in our study [5]. By engaging individuals in the conversation, an OHP can provide his or her expertise on the disease and work participation, and individuals can contribute by providing input on their own specific context, preferences and needs. Research underlines this approach, stating that involving people can greatly improve people's experience and people with a chronic disease leads to greater acceptance and compliance with the advice or interventions [2,12-14,66].

Work environment

What stands out in the solutions reported by people with a chronic disease in this research, is that the work environment (i.e. employer and colleagues) can play a major role in facilitating individuals with a chronic disease in these solutions and thereby their capability to participate in work. Organisations can, for example, provide working aids such as an adapted chair, get colleagues to provide help or provide a level of autonomy in work. Also the provision of support and empathy by the supervisor and colleagues was highly valued by participants with a chronic disease. This is congruent with earlier research that emphasises the role of the supervisor in work participation [67] and the use of work adaptations reducing sick leave among employees with a chronic disease [68].

Although research emphasises the importance of support and adaptations from the work environment [5,36], many participants in our study reported a lack of support or empathy from their work environment [29]. This implies that even though these solutions are relatively easy to implement and could strongly support an individual's capability, a lack of adaptations or support is still experienced by some participants and can limit them in their work participation [29]. Minimum effort concerning support and adaptations at work can often contribute greatly to an individual's perception of work [69]. In addition, as the expected return on investment for employers can be high, as investing in work adjustment can lead to a reduction or even prevention of sick leave [68], support provided by or focusing on the work environment should receive attention.

The discrepancy between the needed and the provided support may be explained by the fact that employers are not always aware of the chronic disease of the employee and its functional restrictions regarding work. Disclosure of a chronic disease can be an issue for people with a chronic disease due to the fear of stigmatisation [70,71]. Participants reported experiences of employers being hesitant to hire them, which increased their fear that disclosing their disease reduces their chances of being hired or keeping their jobs [5]. Receiving support and empathy contributes to a safe social work environment, and therefore facilitates an individual in feeling save to disclose the chronic disease [72]. Therefore, OHPs should advise employers about the value of support and the provision of empathy towards employees with a chronic disease.

Research also reported that organisations focus on 'sickness absence' and 'RTW' instead of on supporting employees with a chronic disease to retain their work [68], which may also explain why the value of known facilitators such as support, empathy, work adaptations, etc. is not fully recognised and applied in daily practice. A good dialogue between employee and employer can reveal what adjustments in work content, organisation or environment are needed to increase the individual's capability.

In addition, literature on support of employers towards their employees with cancer shows that employers found it difficult to deal with their employees with the disease [73]. Employers reported a need for additional information about diagnosis and RTW policies [73,74] and skills in communication to support employees [73]. There are few interventions that facilitate employers in supporting employees with a chronic disease [74]. Therefore, it may be necessary to pay more attention to the implementation of knowledge to facilitate the employer and the organisation to support employees with a chronic disease regarding work participation. Also, OPs can facilitate employers and organisations by providing knowledge, insights and advice to employers on the importance of social support and adjustments in work tasks, conditions or environment.

Facilitating OHPs' use of evidence

We focused on facilitating OHPs' use of knowledge and skills, such as the more holistic approach, more attention to the work environment and the role of the individual, provided in the guideline. Grol et al. [11] explain that dissemination of new information is not enough and that for people to adopt new information, active strategies are needed. As Michie et al. [33] show, a training programme is such an active strategy to change OHPs' capability.

The training programme was developed with the involvement of OHPs to discover their training needs. Thereafter, learning objectives were formulated based on their needs, and subsequent training programme activities were formulated. By involving OHPs, we aimed to focus on learning objectives that had the highest relevance for OHPs' work. Matching training needs is shown to increase trainees' motivation to learn [9,10] and increase adherence to the training programme [13,14]. As indicated by literature, the approach used followed the principles of constructive alignment, which is shown to facilitate the integration of new information with OHPs' current set

of knowledge and skills [75].

The results of the training programme showed that OHPs' knowledge and skills improved after following the training. The increase in knowledge and skills is an indication that OHPs increase their capability ('Do OHPs know how to use the knowledge and skills?') to use the knowledge and skills provided by the guideline. Capability is one of the dimensions for change reported by Michie et al. [33], which indicates that the training programme can facilitate OHPs' change in using knowledge and skills provided by a guideline in daily practice. In addition, the training programme seemed to also influence OHPs' attitude, as OHPs indicated that they found the training acceptable, with the training programme being useful and relevant, and improving their guidance and assessment of people with a chronic disease. This indicates that they are motivated to use the knowledge and skills in their daily practice, which is congruent with one of the three dimensions that could benefit change, namely 'motivation' [33]. Michie et al. [33] explain the motivation dimension as 'Do OHPs believe the knowledge and skills benefit them in their guidance and do they want and plan to use the knowledge and skills?' The results, which show an increase in knowledge and a change in attitude, are in line with other training programmes for IPs implemented by Zwerver et al. [13] and OPs conducted by Joosen et al. [14]. These training programmes contributed to the OHPs' attitude, self-efficacy and intention to apply the guideline [13,14].

OHPs also indicated that the training programme could be implemented on a larger scale, in which they foresaw various barriers and facilitators. The barriers time, money and OHPs' organisational support were reported; the facilitators were related to the added value of the knowledge and skills to OHPs' support and OHPs' learning to apply the evidence in practice. This indicates that extra attention might be needed with regard to the last dimension reported by Michie et al. [33], 'opportunity', which is explained as 'Do OHPs have access to the knowledge and skills and are they supported to use the evidence?'

The barriers time and money are frequently indicated in other research [56,76], which can be explained by the fact that change takes energy (influencing time and money), since the information is not yet integrated in one's daily routine [77]. It is not to say that after the knowledge and skills are integrated in OHPs' daily practice, these barriers are still experienced.

However, for the first step in implementation, one should take into account the time it takes for OHPs to change and integrate the knowledge and skills provided by the guideline. Provision of time can, for instance, be facilitated by OHPs' organisations, which could be included in the implementation approach. This is confirmed by Grol [11], who states that integrating new information can be a long journey, using various methods, as represented in Michie's model [33]. Therefore, for future implementation it is recommended to make a process-based implementation plan [11] that takes into account all aspects of Michie's model [33].

Recommendations for practice and research

Recommendations for practice

Occupational health professionals

- We recommend that OHPs be aware of which value being able to participate in work generally has for an individual and that work can contribute to an individual's values and goals.
- We recommend that OHPs adopt a more holistic approach, which includes attention to the evaluation of the personal and work-related factors influencing an individual's work participation.
- We recommend that OHPs focus on work-related interventions to increase individuals' participation in work. It is recommended to focus the interventions on the specific factors that influence an individual's work participation.
- We recommend that OHPs advise the supervisor or organisation to facilitate and support work adjustments, as a small investment in time, money or interest can have a large influence on an individual's work participation. In addition, we recommend that OHPs explain to employers the value of social support and empathy, so that people feel safe to disclose their diseases.
- We recommend that OHPs facilitate individuals' active involvement in work participation. Through actively involving individuals in the approach, individuals have the opportunity to share their perspectives and the approach can be tailored to the individuals' preferences and needs. To facilitate active involvement, we recommend that OHPs provide individuals with a chronic disease with information about their disease, legislation regarding work participation and the types of support that are available. In addition, people can be empowered through the support of an individual's self-efficacy and improving their coping skills. OHPs can support self-efficacy by facilitating successful experiences, vicarious experience, verbal persuasion and being aware of a positive physiological state.
- We recommend that OHPs follow the training programme to facilitate their use of the knowledge and skills in their guidance and assessment of people with a chronic disease.

Employers

- We recommend that employers be aware of their workers with a chronic disease and provide them first of all with understanding and support, after which needs and work adjustments can be facilitated. We also recommend that employers discuss needs and adjustments together with their workers with a chronic disease.

Individuals with chronic disease

- We recommended that individuals with a chronic disease actively ask for help and information from OHPs, employers, colleagues, friends, family and patient federations, as they can support individuals in the process of WR or RTW.
- We recommend that individuals with chronic diseases play an active role in work participation. Knowledge on their disease, legislation with regard to work participation, the types of support that are available, etc. can contribute to their ability to play an active role and to their sense of empowerment. In addition, self-efficacy can contribute to an individual's sense of feeling empowered. Self-efficacy can be supported through successful experiences, vicarious experience, verbal persuasion and a positive physiological state.

Policymakers

- We recommend that policymakers be aware of the value that participation in work has for individuals with chronic disease. In addition, policymakers are recommended to facilitate work participation by integrating provided knowledge, such as influencing factors, supporting interventions, role of the individual and the influence of the work environment, in current and future policies supporting work participation of people with a chronic disease.
- We recommend that policymakers develop and use training programmes, possibly with the inclusion of the target group, to facilitate the uptake of knowledge and skills provided by guidelines by OHPs.

Medical specialists

- We recommend that medical specialists be aware of the value that work has for people with a chronic disease and to address the theme 'participation in work' in consultation with their patients with a chronic disease.

Recommendations for research

- Based on the evidence obtained on factors and interventions irrespective of diagnosis, we recommend gaining insight into which specific approach works for whom, so that interventions can be better adapted to the individual with a chronic disease.
- To include people in research with a lower level of education or people with specific types of diagnosis, we recommend using other methods of research, such as observation and one-on-one interviews.
- For future implementation of the training programme on a larger scale, we recommend making a process-based implementation plan that takes into account all aspects of Michie's model, including capability, motivation and opportunity.
- We recommend conducting further research to establish whether the acquired knowledge and skills promote OHPs' guidance and assessment of people with a chronic disease, and whether this supports the work participation of people with a chronic disease.

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SUMMARY

Many people worldwide are faced with a chronic disease, leading to a substantial part of the working population having a chronic disease. People with a chronic disease may experience physical or mental limitations, which can cause difficulties in performing their work tasks. Consequently, the work participation of people with a chronic disease can be affected; people with a chronic disease may encounter problems retaining their jobs or returning to work.

Research indicates that most people with a chronic disease want to participate in work. Participating in work may provide not only income but also social contacts, structure and a sense of normality, and increase individuals' mental and physical health. This can contribute to a higher quality of life. Therefore, people with a chronic disease who experience difficulties in retaining or returning to work should be supported.

In the Netherlands, work participation is supported by OPs and IPs. They are responsible for guiding and assessing individuals with a chronic disease regarding participation in work. Although these OHPs are professionally educated and equipped to guide people with a chronic disease, research shows that guidance can be improved through evidence, which can support OHPs in their guidance and assessment of people with a chronic disease regarding their participation in work.

The aim of the present research was to gain insight into how the work participation of people with a chronic disease can be supported, by facilitating OHPs in guiding and assessing people with a chronic disease. This aim resulted in the following research objectives and questions (**Chapter 1**):

Objective 1: To obtain an overview on which factors and interventions influence the work participation of people with a chronic disease, independent of the specific diagnosis.

This objective led to the following research questions:

• Which factors affect the work participation of people with a chronic disease, independent of their diagnosis?

• Which effective interventions can enhance the work participation of people with a chronic disease, independent of their diagnosis?

• What role do people with a chronic disease have in improving their work participation?

Objective 2: To evaluate how the use by OHPs of evidence included in a guideline can be facilitated in order to optimise the guidance and assessment of people with a chronic disease regarding work participation.

This objective led to the following research question:

• Can a training programme increase OHPs' use of the guideline recommendations in their guidance and assessment of people with a chronic disease regarding their work participation?

Research question 1: Which factors affect the work participation of people with a chronic disease, independent of their diagnosis?

In our aim to provide information on how to support the work participation of people with a chronic disease, we first researched which factors independent of diagnosis influence the work participation of people with a chronic disease. To do so, we carried out a systematic review (**Chapter 2**). An extensive search was performed in various databases, in order to provide an overview of factors that are associated with WR or RTW of people with a chronic disease, independent of diagnosis. Of the 2598 unique hits found, six articles were included. The review resulted in various factors that either positively or negatively influence participation in work. Health-related factors, environmental factors and personal factors were identified.

Since previous research had shown that the experienced value of work can be an important factor to participate in work, a questionnaire was used to ask 1683 employed people with a chronic disease to indicate which values participation in work has for them (**Chapter 3**). They were also asked to indicate the reasons they value participation in work. On average, participation in work was given an 8 on a scale from 1 to 10 (1: 'work is not at all important to me', 10: 'work is extremely important to me'). Respondents mostly valued work because it provided them with income and social contacts. They also found it important because through work they were able to contribute to society and to develop and share their qualities. Finally, participants were asked to indicate which specific aspects of their work motivated or demotivated them. The reported aspects were related either to work or to the person him- or herself, such as social contact, level of autonomy or the way the company was organised.

Research question 2: Which effective interventions can enhance the work participation of people with a chronic disease, independent of their diagnosis?

In order to change negatively influencing factors regarding work participation, interventions can be deployed. In **Chapter 4** we report which interventions are effective, irrespective of diagnosis, in enhancing the work participation of people with a chronic disease. This evidence was obtained through the performance of a systematic review of systematic reviews. In our aim to gather high quality evidence, only reviews were selected of medium or high quality based on the quality instrument AMSTAR. The reviews that were included had to describe an intervention aimed at enhancing work participation and had to include people of working age with a chronic disease. In addition, the reviews had to include multiple populations with various diagnoses. In our search, 3118 unique hits were found. Nine reviews met the inclusion criteria, of which five were of sufficient quality. The results of the review showed that interventions examined in populations having different chronic diseases were mainly focused on changes at work, including changes in the work tasks, work condition, work environment, work organisation and communication between the stakeholders involved. This indicates that OHPs could consider and initiate work-directed interventions directed at work as a generic approach to enhance the work participation of people with a chronic disease.

Research question 3: What role do people with a chronic disease have in improving their work participation?

Since people with a chronic disease share the responsibility to determine a plan of action together with OHPs, people with a chronic disease have an important role in their participation in work. Therefore, solutions initiated by people with a chronic disease to retain their work or return to their work and their need for support to find and use these solutions were explored (**Chapter 5**). Five focus groups were held with 19 participants having different chronic diseases, recruited through a research institution's patient panel, a patient federation and personal networks. Analysis was conducted by means of open and selective coding, using the MAXQDA software package. In the focus groups, people with a chronic disease were asked which solutions they used to participate in work, and what support they needed in order to find and implement these solutions. The focus groups identified various solutions, and

types of support needed from others to find and implement these solutions, experienced by people with a chronic disease. An important step in the process towards participation in work is learning to accept and cope with the disease, which was frequently supported by family and friends. Disclosing the disease to employers and colleagues, identifying active ways to help with work duties and implementing adaptations to the work environment were all effective solutions with the help, empathy and understanding of people in the work environment. Solutions mostly supported by patient associations included providing sufficient information about the disease, relevant help and protective legal regulations regarding work participation. Finally, OHPs could provide support by advising the use of solutions facilitating periods of rest, supporting self-efficacy and gaining insight into an individual's ability to participate in work. According to research on self-efficacy, self-efficacy beliefs can be developed through successful experiences, vicarious experience, verbal persuasion by others and physiological states.

Research question 4: Can a training programme increase OHPs' use of the guideline recommendations in their guidance and assessment of people with a chronic disease regarding their work participation?

The evidence retrieved, including information about factors, interventions and the role of the individual, was included in a guideline to provide the evidence to OHPs in a clear and manageable way. Based on the evidence, recommendations were formulated including hands-on information about what OHPs can do to optimise their guidance and assessment of people with a chronic disease to improve work participation. Since adherence to guidelines by OHPs is generally low, a training programme was developed and tested to increase the uptake of the evidence.

Chapter 6 focuses on the development of the training through a qualitative approach comprising four steps. First, two focus groups were held to explore OHPs' training needs. OHPs were recruited through personal networks. The first meeting included four OHPs, the second meeting three IPs. Second, based on the reported training needs, a total of 17 learning objectives were formulated by the researchers. Examples are: 'OHPs are able to identify influencing factors', 'OHPs are able to indicate and use effective interventions' and 'OHPs are able to stimulate the own role of people with a chronic disease'. Third, experts in the field of training were interviewed

to explore relevant teaching methods. Reported relevant teaching methods included homework, case study, role play, discussion of best practices, debate and holding an interview with stakeholders to gain understanding. Finally, research integrated the learning objectives and teaching methods in a final six-hour training approach.

Thereafter, the feasibility and impact of the training programme was evaluated (**Chapter 7**). A repeated measurement within one group design was conducted, including a questionnaire at baseline (T0), a questionnaire after reading the guideline (T1), and a questionnaire after following the training (T2). A total of 38 OHPs were recruited by contacting several staff members, each of whom invited OHPs in their networks to join the study. The specific aspects of feasibility measured in this study were acceptability, implementation and limited efficacy. Acceptability and implementation were researched through questions included in T2. Limited efficacy was measured through eight questions that assessed knowledge and skills, included in T0, T1 and T2.

With regard to acceptability, participants reported that the training had increased their capability to use the guideline (M: 7, SD: 1), adheres to their daily practice (M: 8, SD: 1), contributed to their knowledge and skills (M: 8, SD: 1) and is relevant and useful for their guidance and assessment of people with a chronic disease (M: 8, SD: 1). OHPs generally indicated the training to be feasible to implement on larger scale (M: 7, SD: 1). For implementation on large scale, various barriers and facilitators were reported by OHPs. Barriers were related to the content of the guideline, the design of the training, and support of the organisation of occupational and insurance physicians. Facilitators were related to the added value of the knowledge and skills for the OHPs' guidance and assessment tasks, and that the programme had taught them to apply the evidence in practice. Results on limited efficacy showed a significant improvement over time (X^2 (2) = 53.656, $p < 0.05$), both after reading the guideline ($p < 0.05$, 2-tailed) and after following the training programme ($p < 0.05$, 2-tailed).

Conclusions and recommendations for future research and practice

This thesis presents evidence that can facilitate OHPs in their support of people with a chronic disease to participate in work.

To support people with a chronic disease, we recommend OHPs to use a more holistic approach, in which we recommend to pay attention to the influence of an individual's personal factors, and work-related factors and to provide advice on work-related interventions. OHPs can provide advice to organisations, so that employers become aware of their workers with a chronic disease and provide them with support, empathy and work adjustments, which can facilitate individuals' work participation. We also recommend OHPs to facilitate individuals' active involvement in work participation, so that they are able to share their perspectives and the approach can be tailored to each individual's preferences and needs. People with a chronic disease are encouraged to share their perspectives and to be actively involved in work participation. They are also recommended to actively ask for help, as others can support them in their work participation. Finally, OHPs are recommended to follow the training programme to facilitate their use of knowledge and skills provided in their guidance and assessment of people with a chronic disease. Policymakers can use the provided information and recognise the value of participation in work for people with a chronic disease, and use the development of the training programme as an approach the development and use of training programmes to facilitate the application of knowledge and skills by OHPs.

A recommendation for future research is that the gathered evidence can be used to further personalise the support and the interventions, so that they suit more closely an individual's situation. To further implement the training programme, it is recommended to evaluate all dimensions that can influence change according to Michie's model, namely capability, motivation and opportunity. Future research is needed to establish whether the provided knowledge and skills promote OHPs' guidance and assessment of people with a chronic disease, and support the work participation of people with a chronic disease.

SAMENVATTING

Aanleiding

Een groot aantal werk(zoek)enden heeft een of meerdere chronische aandoeningen. Een chronische aandoening is een aandoening die minstens drie maanden duurt en gepaard gaat met blijvende of terugkerende symptomen. Voorbeelden van chronische aandoeningen zijn: reuma, kanker, psychische stoornissen, hart- en vaatzieken of diabetes. Een groot deel van deze werk(zoek)enden ervaart verschillende beperkingen door de ziekte, zoals pijn, fysieke belemmeringen of vermoeidheid. Dit maakt het uitvoeren of volhouden van werk soms lastig en heeft tot gevolg dat werk(zoek)enden met een chronische aandoening vaker werkloos zijn of minder uren werken.

Onderzoek laat echter zien dat mensen met een chronische aandoening werk waarderen en graag willen werken. Werk zorgt niet alleen voor inkomen, maar geeft structuur, sociale contacten en verbetert de fysieke en mentale gezondheid. Daarnaast geven mensen met een chronische aandoening aan dat het kunnen werken bijdraagt aan het gevoel van ‘weer normaal zijn’. Al deze aspecten dragen bij aan een hogere ervaren kwaliteit van leven. Het is daarom belangrijk om mensen met een chronische aandoening te ondersteunen in werk. Professionals die hierbij kunnen helpen, zijn bedrijfs- en verzekeringsartsen. Een bedrijfsarts helpt een werknemer om aan het werk blijven of om bij kortdurende uitval, terug te keren naar werk. Een verzekeringsarts komt in beeld wanneer de persoon meer dan twee jaar is ziekgemeld.

Hoewel bedrijfs- en verzekeringsartsen opgeleid en vaardig zijn in het begeleiden of beoordelen van werk(zoek)enden met een chronische aandoening, kunnen zij tegen vragen in de begeleiding of beoordeling aanlopen. Deze vragen zijn bijvoorbeeld gericht op factoren die een rol spelen in deelnemen in werk en interventies die effectief zijn om mensen te ondersteunen in werkbehoud of terugkeer naar werk. Relevante informatie over werken met een chronische aandoening, kan bedrijfs- en verzekeringsartsen ondersteunen in de begeleiding en beoordeling van mensen met een chronische aandoening.

Veel onderzoek naar werken met een chronische aandoening is uitgevoerd in groepen mensen met één specifieke diagnose. Uit deze onderzoeken komen echter veel overeenkomstige factoren en interventies naar voren die werkbehoud of terugkeer naar werk beïnvloeden. Voorbeelden van deze factoren zijn ‘vermoeidheid’ of ‘sociale steun van de werkomgeving’.

Daarom hebben we onderzoek gedaan naar de factoren en interventies die deelname in werk beïnvloeden onafhankelijk van de specifieke ziekte, zogenaamde 'ziekte-overstijgende' factoren en interventies. In dit proefschrift is eerst ziekte-overstijgende informatie verzameld, waarna aandacht is gegeven aan het gebruik van de ziekte-overstijgende informatie door bedrijfs- en verzekeringsartsen. Het doel hiervan is om de begeleiding en beoordeling van bedrijfs- en verzekeringsartsen te optimaliseren.

Doel 1: Informatie verzamelen over de werkparticipatie van mensen met een chronische aandoening, om de begeleiding en beoordeling van bedrijfs- en verzekeringsartsen te ondersteunen.
Om dit doel te behalen, zijn drie onderzoeksvragen geformuleerd. Deze onderzoeksvragen zijn:
• Welke ziekte-overstijgende factoren beïnvloeden participatie in werk van mensen met een chronische aandoening?
• Welke ziekte-overstijgende interventies zijn effectief om de invloed van deze factoren te veranderen en werkparticipatie van mensen met een chronische aandoening te ondersteunen?
• Welke rol hebben mensen met een chronische aandoening zelf in werkparticipatie?

Welke ziekte-overstijgende factoren beïnvloeden participatie in werk van mensen met een chronische aandoening?
Door middel van een uitgebreid literatuuronderzoek in de internationale literatuur (**Hoofdstuk 2**) hebben we gezocht naar welke factoren werkbehoud en terugkeer naar werk bij mensen met een chronische aandoening negatief of positief beïnvloeden. Er werden zes relevante studies gevonden die totaal 23 factoren beschreven die werkbehoud of terugkeer naar werk beïnvloeden. Deze factoren zijn gerelateerd aan gezondheid (bijv. het hebben van meer dan één aandoening), de omgeving (bijv. werkomgeving) of aan de persoon (bijv. leeftijd).

In **Hoofdstuk 3** zijn we dieper ingegaan op de persoonlijke en werkgerelateerde factoren die werk beïnvloeden. Door middel van een vragenlijst hebben we aan werkenden met een chronische aandoening gevraagd hoe belangrijk zij werk vinden en waarom zij werk belangrijk vinden. Ook hebben we gevraagd welke specifieke aspecten in werk ze motiveren en demotiveren.

Werkenden met een chronische aandoening gaven aan dat zij werk belangrijk vinden; ze gaven werken gemiddeld een 8 op een schaal van 1 (helemaal niet belangrijk) tot 10 (heel erg belangrijk). Werk was voornamelijk belangrijk voor hen omdat het zorgt voor inkomen, sociale contacten en omdat ze door werk bij kunnen dragen aan de maatschappij. Motiverende of demotiverende aspecten in werk zijn gerelateerd aan de persoon zelf en gerelateerd aan werkinhoud, werkomgeving, werkvoorwaarden en werkomstandigheden. Voorbeelden van motiverende aspecten zijn: goed contact met collega's, leuk inhoudelijk werk, kwaliteiten kunnen ontwikkelen. Voorbeelden van demotiverende aspecten zijn: het hebben van weinig autonomie, lange reistijd en het uitvoeren van fysiek zwaar werk.

Welke ziekte-overstijgende interventies zijn effectief om de invloed van deze factoren te veranderen en werkparticipatie van mensen met een chronische aandoening daarmee te ondersteunen?
In **Hoofdstuk 4** is door middel van een uitgebreid literatuuronderzoek in de internationale literatuur uitgezocht welke ziekte-overstijgende interventies effectief zijn om werkparticipatie te verhogen. In totaal zijn negen relevante onderzoeken gevonden, waarvan vijf studies van voldoende kwaliteit waren. Uit deze vijf onderzoeken bleek dat voornamelijk interventies gericht op aanpassingen in werk effectief zijn, zoals aanpassingen in werktaken, werkomgeving en werkvoorwaarden. Dit betekent dat bedrijfs- en verzekeringsartsen interventies gericht op aanpassingen in het werk kunnen inzetten om werk van mensen met een chronische aandoening te ondersteunen.

Welke rol hebben mensen met een chronische aandoening zelf in werkparticipatie?
Mensen met een chronische aandoening spelen zelf ook een belangrijke en actieve rol in het behouden of terugkeren naar werk. Om deze rol te onderzoeken, hebben wij aan negentien mensen verdeeld in vijf groepsgesprekken gevraagd welke oplossingen zij gebruiken om aan het werk te blijven of om terug te keren naar werk (**Hoofdstuk 5**). Ook is gevraagd of en van wie ze ondersteuning nodig hebben in het verzinnen of gebruiken van de oplossingen. Een belangrijke genoemde oplossing om deel te nemen in werk was het leren accepteren en omgaan met de chronische aandoening.

Dit werd vaak ondersteund door familie en vrienden van de persoon. Openheid geven over de ziekte aan de werkomgeving, hulp vragen aan collega's en werkaanpassingen gebruiken zijn oplossingen die ook werden genoemd. Deze oplossingen kunnen worden ondersteund door de werkomgeving. De werkomgeving kan daarnaast ondersteuning bieden door empathie en begrip te tonen voor werknemers met een chronische aandoening. Steun van de patiëntenvereniging is met name gericht op het verkrijgen van informatie over de ziekte, informatie over beschikbare hulpmiddelen en steun en informatie over regelgeving omtrent werken. Tot slot werden oplossingen als het inbouwen van rust in een werkdag of na een werkdag, geloven in en communiceren van eigen kwaliteiten en het hebben van inzicht in eigen mogelijkheden om deel te nemen in werk genoemd als mogelijke oplossingen om te werken. Deze oplossingen werden vaak ondersteund door bedrijfs- en verzekeringsartsen.

Doel 2: Onderzoeken hoe het gebruik van de gevonden informatie door bedrijfs- en verzekeringsartsen in hun werk kan worden ondersteund.
Om dit doel te behalen, is er één onderzoeksvraag geformuleerd:
• Kan een training het gebruik van de informatie in de begeleiding en beoordeling van bedrijfs- en verzekeringsartsen ondersteunen?

Kan een training het gebruik van de informatie in de begeleiding en beoordeling van bedrijfs- en verzekeringsartsen ondersteunen?
Om de informatie over factoren en interventies overzichtelijk aan bedrijfs- en verzekeringsartsen aan te bieden, is de gevonden informatie in een richtlijn beschreven. Op basis van de informatie, zijn daarnaast aanbevelingen geformuleerd. Deze aanbevelingen omvatten concrete informatie wat bedrijfs- en verzekeringsartsen kunnen doen om de begeleiding en beoordeling te optimaliseren. Omdat uit onderzoek blijkt dat het gebruik van richtlijnen door gezondheidsprofessionals over het algemeen laag is, wilden we het gebruik van de informatie uit de richtlijn door bedrijfs- en verzekeringsartsen ondersteunen door een training te maken.

De training (**Hoofdstuk 6**) is ontwikkeld samen met bedrijfs- en verzekeringsartsen. In groepsgesprekken hebben wij aan zeven bedrijfs- en verzekeringsartsen gevraagd welke van de totaal 53 aanbevelingen uit de richtlijn hoge prioriteit hebben om te gebruiken en nog geen onderdeel

zijn van hun dagelijkse werk. Daarna is hen gevraagd welke kennis en vaardigheden bedrijf- en verzekeringsartsen nodig hebben om de geselecteerde aanbevelingen in de praktijk toe te passen. In interviews met experts op het gebied van educatie is vervolgens gevraagd hoe we de bedrijfs- en verzekeringsartsen de benodigde kennis en vaardigheden kunnen aanleren. Gerapporteerde werkvormen waren onder andere: werken met een casus, rollenspel, huiswerk, discussie van ervaringen tussen bedrijfs- en verzekeringsartsen onderling en vragen stellen aan een medisch specialist of een patiënt om meer wederzijds begrip te creeëren. Op basis van de leerdoelen en werkvormen, is een zes-urige training samengesteld.

Na het ontwikkelen van de training, hebben we de haalbaarheid van de training onderzocht door de training uit te voeren bij een groep van 38 bedrijfs- en verzekeringsartsen (**Hoofdstuk 7**). Om de haalbaarheid te evalueren, hebben we de artsen gevraagd of de inhoud van de training aansluit bij hun dagelijkse praktijk en of de training van meerwaarde is voor de begeleiding of beoordeling van werk(zoek)enden met een chronische aandoening. Dit werd positief beoordeeld, met een 7.5 gemiddeld. Daarna hebben we gevraagd of de training kan worden uitgevoerd op grotere schaal. Ook hier gaven artsen groen licht, met een 7 gemiddeld. Wel zagen ze nog enkele belemmeringen voor het uitvoeren van de training op grote schaal, zoals het gebrek aan ‘tijd’, ‘geld’ en steun van de organisatie waar de artsen werkzaam zijn. Een aspect wat werd aangegeven als helpend in de implementatie daarentegen, is dat de training bedrijfs- en verzekeringsartsen helpt in de begeleiding van werk(zoek)enden met een chronische aandoening. Tot slot hebben we gekeken of de kennis- en vaardigheden van artsen door de training toenemen, door ze op drie momenten vragen voor te leggen om hun kennis en vaardigheden te testen. Uit deze resultaten blijkt dat dat kennis en vaardigheden van artsen verbetert na het lezen van de richtlijn en na het volgen van de training.

Conclusies en aanbevelingen voor praktijk en onderzoek

In dit proefschrift is kennis verzameld om bedrijfs- en verzekeringsartsen te ondersteunen in hun begeleiding en beoordeling van mensen met een chronische ziekte om deel te nemen aan werk.

Om mensen met een chronische aandoening te ondersteunen, raden we bedrijfs- en verzekeringsartsen aan een meer een holistische benadering gebruiken, waarin wordt gekeken naar de persoon als geheel. In deze aanpak raden we aan veel aandacht te geven aan de persoonlijke en werkgerelateerde factoren en -interventies die het werk van een individu kunnen beïnvloeden. Bedrijfs- en verzekeringsartsen kunnen daarnaast organisaties advies geven, zodat werkgevers zich bewust worden of werknemers een chronische ziekte hebben en zij hen ondersteuning, empathie en werkaanpassingen kunnen bieden om deelname in werk te ondersteunen.

We adviseren bedrijfs- en verzekeringsartsen om mensen te ondersteunen om zelf actief betrokken te zijn bij hun deelname in werk. Door actief betrokken te zijn, kunnen werk(zoek)enden hun perspectief delen en de aanpak meer worden aangepast aan hun voorkeuren en behoeften. Mensen met een chronische aandoening wordt aangeraden om kennis te hebben over hun diagnose en de regels over werken, zodat ze makkelijker deel kunnen nemen in het gesprek met de bedrijfs- en verzekeringsarts. Zij worden aangeraden om actief hulp te vragen, zodat anderen hen in hun deelname in werk kunnen ondersteunen. Bedrijfs- en verzekeringsartsen krijgen de aanbeveling om de training te volgen om zo benodigde kennis en vaardigheden op te doen om de kennis in de praktijk toe te kunnen passen. Beleidsmakers kunnen de verstrekte informatie gebruiken om bewust te worden van de waarde van werk voor mensen met een chronische ziekte. De kennis over de ontwikkeling van de training kunnen zij gebruiken in de ontwikkelingen van andere trainingen om het gebruik van richtlijnen door bedrijfs- en verzekeringsartsen te ondersteunen.

De verzamelde kennis kan worden gebruikt voor toekomstig onderzoek, om de ondersteuning en de interventies verder te personaliseren, zodat deze per individu en (werk)situatie kunnen worden aangepast. Om de training op grote schaal uit te zetten en te evalueren, raden wij aan een implementatieplan te maken die rekening houdt met zowel de vaardigheden, motivatie en omgeving van de bedrijfs- en verzekeringsartsen. Toekomstig onderzoek is nodig om te onderzoeken of de verstrekte kennis en vaardigheden worden gebruikt in de begeleiding en beoordeling van bedrijfs- en verzekeringsartsen en of dit werk van mensen met een chronische ziekte beïnvloed.

ABOUT THE AUTHOR

Curriculum vitae

Ilse Marianne (Marloes) Vooijs was born on 11th of August 1989 in Leiden, The Netherlands. After finishing secondary school at Pieter Groen, Andreas College, she studied Psychology at the University of Leiden. Between her Bachelor's and Master's, she travelled through Indonesia and worked as an English teacher in an orphanage in Temanggung, Indonesia. Her Bachelors were followed by a Master's program in Health Psychology. For her internship, she worked at the Public Health Services (in Dutch: GGD), in which she focused on the prevention of unhealthy lifestyles, being one of the risk factors of the development of chronic diseases. Thereafter, she followed a second Master in Clinical Psychology. For the intership for this master, she was educated as a trainer in interpersonal professional skills. Thereafter, she trained Psychology students in the development of their their personal- and professional skills. Marloes finished both the Health Master and Clinical Master degrees in 2013. During her study at the university, she worked as a health care worker for people with a chronic disease or handicap, in which one of her tasks was to ensure that they participated in daily and/or working life. In the last phase of her study, she also educated first year students and Master students in health psychology courses. After her graduation, she started working as a PhD Candidate at the Coronel Institute of Occupational Health, Academic Medical Center, Amsterdam. Her research project focuses on the provision for and use of information by OHPs regarding work participation of people with a chronic disease, with the final goal to enhance work participation of people with a chronic disease. This research forms the basis of this PhD thesis. Besides her PhD-project, Marloes was also involved in the education of medical students in the field of occupational health.

Portfolio

Name PhD student: Marloes Vooijs

PhD period: December 2013 – November 2017

Name PhD supervisor: Prof. dr. M.H.W. Frings-Dresen

	Year	Workload Hours	ECTS
1. PHD TRAINING			
General courses			
AMC World of Science	2014	20	0.7
Searching for Systematic Review	2014	3	0.1
Endnote	2014	3	0.1
Citation Analysis and Impact Factors	2014	3	0.1
Embase/Medline via OVID	2014	3	0.1
PsycINFO	2014	3	0.1
Scientific writing in English for Publication	2014	42	1.5
Evidence-Based Searching	2014	3	0.1
Clinical Epidemiology	2014	24	0.9
Project Management	2014	16	0.6
Clinical Data Management	2015	9	0.3
Practical Biostatistics	2015	42	1.5
Oral Presentation in English	2015	22	0.8
Qualitative Health Research	2015	54	1.9
Basis course for clinical investigators (BROK)	2016	28	1.0
Specific courses			
'Krachtig presenteren' (Leiden University)	2015	20	0.7
Work Disability Prevention (NIVA)	2016	42	1.5
Implementing and evaluation organizational interventions (NIVA)	2017	28	1.0
Seminars, workshops and master classes			
Biweekly research meetings Coronel Institute	2013-2017	90	3.2
Monthly seminars Kenniscentrum Verzekeringsgeneeskunde (KCVG)	2013-2016	48	1.7
Biyearly seminars Landelijk Netwerk Chronisch Ziek en Werk (LNCZW)	2013-2017	15	0.5
APROVE workshop: Pimp my Excel	2015	1	0.1

APROVA workshop: Tax return	2017	1	0.1
Jong AMC ‘Persoonlijk Leiderschap’	2016	3	0.1
Jong AMC ‘Politiek op de Werkvloer’	2017	3	0.1
Presentations			
Oral presentation, Verzekeringsgeneeskundige dagen	2014	14	0.5
Presentation research meetings Coronel Institute (5x)	2014-2017	70	2.5
Poster presentation, Bedrijfsgeneeskundige dagen (2x)	2014-2016	28	1.0
Oral presentation, Bedrijfsgeneeskundige dagen (3x)	2014-2017	42	1.5
Poster presentation, Muntendam symposium (2x)	2014-2015	28	1.0
Oral presentation Human Capital Care	2015	14	0.5
Oral presentation meeting Kenniscentrum Verzekeringsgeneeskunde (KCVG)	2016	14	0.5
Oral presentation meeting Landelijk Netwerk Chronisch Ziek en Werk (LNCZW)	2016	14	0.5
Poster presentation Amsterdam Public Health: Kick-off meeting	2016	14	0.5
Oral presentation Invitational Conference: ‘Chronisch Zieken en Werk’	2016	14	0.5
Oral presentation European Union for Medicine in Assurance and Social Security (EUMASS) congress	2016	14	0.5
Oral presentation Work Disability Prevention Knowledge (WDPI) conference	2016	14	0.5
Oral presentation Onderzoekersdag Instituut Gak	2016	14	0.5
Online webinar Canadian Institute for the Relief of Pain and Disability	2017	14	0.5
Oral presentation Verzekeringsgeneeskundig Overleg	2017	14	0.5
Oral presentation Academiseringsmiddag	2017	14	0.5
Oral presentation Bedrijfsartsen in Zorg	2017	14	0.5
Oral presentation international visitation committee	2017	14	0.5
(Inter)national conferences			
Muntendam symposium (4x)	2013-2016	16	0.6
Verzekeringsgeneeskundige dagen	2014	8	0.3
Symposium ‘Fit 4 Work’	2014	8	0.3
Heijermanslezing ‘Van diagnose naar functioneren’	2015	4	0.1

Onderzoekersdag Instituut Gak (2x)	2015-2016	16	0.3
Bedrijfsgeneeskundige dagen (4x)	2015-2017	32	1.1
European Union for Medicine in Assurance and Social Security (EUMASS) congress	2016	24	0.9
Work Disability Prevention Knowledge (WDPI) conference	2016	24	0.9
Symposium on Occupational Health Care	2016	8	0.3
Amsterdam Public Health: Kick-off Meeting	2016	8	0.3
Other			
Meetings richtlijnwerkgroep (5x)	2014-2016	10	0.4
Meetings interne begeleidingscommissie (2x)	2014-2016	4	0.1
Meetings externe begeleidingscommissie (3x)	2014-2016	6	0.2
Progress visits Instituut Gak (3x)	2014-2016	6	0.2
Organisation Invitational Conference	2016	42	1.5
Coronel Institute: Commission Annual Report	2017	10	0.4
Coronel Institute: Commission Employee Satisfactory Survey	2017	5	0.2

2. TEACHING			
Lecturing			
Practicum Depressie en Werk – 3rd year medical students (6x)	2014-2016	15	0.5
Guest lecturer ‘Leven en werk met een chronische ziekte’ (3x)	2015-2017	42	1.5
Juniorcoschap Arbeid en Gezondheid – 2nd year medical students (7x)	2014-2017	84	2.6
Practicum Writing an abstract – 1st year medical students (3x)	2017	9	0.3
Reviewing essays ‘Ziek/Gezondheid’ - 1st year medical students	2017	3	0.1
Other			
Organisation and providing a training for occupational health professionals to support implementation of the guideline ‘Chronisch Zieken en Werk’ (2x)	2017	60	2.1
TOTAL (28 hrs = 1 ECTS)		1334	47.6

Publications

Articles related to this thesis

- **Vooijs M**, Leensen MCJ, Hoving JL, Daams JG, Wind H, Frings-Dresen MF. Disease-generic factors of work participation of workers with a chronic disease: a systematic review. International Archives of Occupational and Environmental Health 2015;88:1015-1029.
- **Vooijs M**, Leensen MCJ, Hoving JL, Wind H, Frings-Dresen MF. Value of work for employees with a chronic disease. Occupational Medicine 2017;doi: 10.1093/occmed/kqx178
- **Vooijs M**, Leensen MCJ, Hoving JL, Wind H, Frings-Dresen MF. Interventions to enhance work participation of workers with a chronic disease: a systematic review of reviews. Occupational Environmental Medicine 2015;72:820-826.
- **Vooijs M**, Leensen MCJ, Hoving JL, Wind H, Frings-Dresen MF. Perspectives of people with a chronic disease on participating in work: A focus group study. Journal of Occupational Rehabilitation 2017;doi 10.1007/s10926-016-9694-6 [Epub ahead of print].
- **Vooijs M**, Bossen D, Hoving JL, Wind H, Frings-Dresen MF. Development of a training programme to facilitate occupational health professionals in the use of knowledge and skills provided by a guideline. Submitted.
- **Vooijs M**, Bossen, Hoving JL, Wind H, Frings-Dresen MF. A training programme facilitating guideline use by occupational health professionals: A feasibility study. Submitted.

Other articles and reports

- **Vooijs M**, van der Heide I, Leensen MCJ, Hoving JL, Wind H, Frings-Dresen M. Richtlijn Chronisch Zieken en Werk. Amsterdam: Coronel Instituut voor Arbeid en Gezondheid, AMC/UvA, 2016.
- Bossen D, **Vooijs M**, Hoving JL, Wind H, Frings-Dresen MHW. Chronisch zieken en werk: Een multidisciplinaire richtlijn voor bedrijfs- en verzekeringsartsen. Tijdschrift voor Bedrijfs- en Verzekeringsgeneeskunde. 2017;25:360-363.
- Wind H, van der Heide I, **Vooijs M**, Bossen D, Hoving JL, Frings-Dresen MHW. Richtlijn chronisch zieken en werk. Gepubliceerd in Nederlands Tijdschrift voor Geneeskunde 2018;162;D2030

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